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Geopolitics and Export Miracles: Firm-level evidence from U.S. ware procurement in Korea

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Abstract

How did geopolitics shape East Asia's economic development? We find that U.S. military procurement during the Vietnam War—a shock which peaked at nearly 3% of South Korean GDP, rivalling the Marshall Plan—catalyzed Korea's export-led industrialization. We construct a new firm-level dataset that matches Korean export records with U.S. procurement contracts awarded between 1965 and 1974 to estimate the causal impact of winning a contract on export performance. A firm winning its first contract raises its likelihood of exporting by 14.7 percentage points and its export value by 40%. Treated firms are more likely to expand into third-country markets and export manufacturing products—and these gains are unlikely to come from business stealing. Finally, we find that U.S. procurement and domestic industrial policy were likely complementary. Our findings reveal a neglected channel through which Cold War geopolitics shaped the East Asian economic miracle.

Keywords: productivity, default risk, credit frictions, misallocation
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1 Introduction

The East Asian miracle unfolded against the backdrop of the Cold War. In the 1950s, U.S. military demand from the Korean War jump-started Japan's struggling postwar economy (Johnson, 1972, p.23; Nakamura, 1981).[1] In the 1960s and 1970s, American procurement spurred by the Vietnam War reached between 2% and 10% of GDP annually in the emerging economies of South Korea, Singapore, Hong Kong, and Taiwan (Naya, 1971; Park and Clayton, 2003). In South Korea alone, the United States awarded firms $772.5 million in procurement contracts, with annual procurement peaking at 2.9% of GDP in 1968, a scale rivaling the Marshall Plan.[2] Many of South Korea's *chaebol* conglomerates, such as Hyundai and Hanjin, gained export experience as suppliers to the war effort (Glassman and Choi, 2014). Yet the overall contribution of U.S. military demand shocks to East Asia's export-led industrialization remains poorly understood.

This question bears on a broader debate over the determinants of firm growth in developing countries. A growing body of microeconomic research, largely in contemporary developing contexts, explores how demand-side interventions—in particular, access to foreign markets—can enable firm growth (Atkin et al., 2017; Alfaro-Ureña et al., 2022; Goldberg and Reed, 2023). However, little modern research examines the demand-side factors behind the East Asian miracle—perhaps the most salient example in economic history of export-led transformation.[3] Despite the extraordinary scale of wartime procurement, no modern empirical study has traced its effects on firms or estimated its contribution to the region's export takeoff.

We examine how the Vietnam War procurement boom shaped South Korea's export development. To study the boom, we construct a firm-level dataset that links newly digitized Korean export records with historical U.S. procurement contracts. In doing so, we push the firm-level record back to 1959—opening the first decade of Korea's growth miracle to modern econometric analysis for the first time.[4] Using variation in the timing of firm contracts, we implement a staggered event-study design to estimate the impact of procurement on firm

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1 Major Japanese producers, such as Toyota and Suzuki, were rescued by Korean War contracts with the U.S. government (Dingman, 1993).

2 The Marshall Plan amounted to roughly 2% of GDP for recipient European countries from 1948 to 1951 (Eichengreen, 2010). Korean War procurement for Japan is estimated to be between 3% and 3.5% of GDP; Vietnam War procurement for Japan was larger in absolute terms, although smaller as a share of aggregate income.

3 Barteska and Lee (2025) constitutes a partial exception, studying South Korean overseas export promotion.

4 Relative to Kim et al. (2021), we add 1959–1966, 1970, and 1972; relative to Choi and Levchenko (2025), we add 1959–1969.

exports. We draw on unique data on firm-level export plans set jointly by firms and the Korean government to validate our identification strategy and test its key assumptions.

We find that procurement contracts generate large and persistent gains in firm exports. Following their first military contract, firms become 14.7 percentage points more likely to export and increase the value of their exports by 40%. These effects build over five years before stabilizing and are especially pronounced in East and Southeast Asian markets—after excluding Vietnam. Procurement also broadens firms' reach, increasing the number of destination markets (particularly Western countries beyond the U.S.) and the number of exported products. At the same time, firms reorient their exports toward labor-intensive light manufactures—such as textiles, apparel, and leather goods—and away from raw materials and primary commodities.[5] Nor are these gains likely to reflect business stealing: sectors receiving procurement contracts grow in total exports, and never-treated firms expand alongside treated firms in the same manufacturing sectors, albeit more slowly.

The positive extensive- and intensive-margin effects persist for at least eight years after the initial contract—well beyond the Vietnam War. Even amid South Korea's broader export boom, firms exposed to procurement contracts continued to export significantly more than others. This persistence suggests that procurement either relaxed long-term constraints or strengthened fundamentals, such as firms' productivity in dealing with foreign buyers and the credibility gained as U.S. government suppliers. The effects also vary by *contract type*: gains in goods-export participation and product scope are substantially larger for firms whose first contract covered goods rather than services. One reading is that producing goods to military specification built capabilities closer to those required for exporting goods,[6] though the difference may also partly reflect selection. Finally, firms that won procurement contracts saw the largest export gains during the subsequent Heavy and Chemical Industry (HCI) drive, suggesting that this foreign demand shock complemented and enabled domestic industrial policy, which has been the focus of recent work (Lane, 2025).

We validate our research design using both standard diagnostic checks and a distinctive feature of our data: firm-level export targets. First, we find no differential pre-treatment trends in exports between treated and untreated firms, and a marked rise upon receiving a first procurement contract. Second, the export targets let us zoom in on the identifying assumptions for a set of key years within the procurement period. These export targets were set for the subsequent year jointly by firms and the Korean government, capturing

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5 We find a significant positive effect of procurement contracts on exports of products in eight two-digit SITC (Revision 2) divisions that are associated with labor-intensive manufacturing. See Section 5.2.

6 The procured goods are almost never of direct military nature. Instead they are goods with close consumer equivalents, such as footwear or garments.

expectations based on information available at the time of planning. Export targets for the year of a firm's first procurement contract do not increase. However, export targets rise one year later—i.e., as soon as information about a contract is available—consistent with policymakers and firms updating expectations after observing realized export gains. This pattern—parallel pre-trends, immediate effect on exports, but only delayed updating of targets—is evidence against threats to identification, such as selection on expected export growth. Targets offer only a glimpse into the identifying assumptions and are not definitive. For instance, they cannot speak to a contemporaneous shock that was itself unforeseen when targets were set.

Taken together, our estimates indicate that U.S. military procurement had substantial aggregate effects on South Korea's export boom. On the extensive margin, we estimate that procurement expanded the number of exporting firms by 42.5, or about 10.0% of exporters in 1973. On the intensive margin, our estimates imply that procurement contracts accounted for 10.3% of exports in our firm sample in 1973.

We make three contributions.

First, we provide one of the first quantitative analyses of how Cold War geopolitics shaped the East Asian growth miracle. Social science scholarship has long emphasized the influence of Cold War conflicts on the region's economic development (Naya, 1971; Stubbs, 1999, 2005), a view captured by historian Bruce Cumings: "warfare in East Asia was handmaiden to economic growth" (Cumings, 1997, p.322). Just as researchers of postwar Japan have documented how the "Korean boom"—due to the Korean War—aided Japan's postwar recovery (Nakamura, 1981; Kōsai, 1986; Kōsai and Goble, 1989; Miller, 2024),[7] historians have argued the Vietnam War was pivotal for Korea's industrial ascent (Woo, 1991; Cumings, 1997; Frentzos, 2004, 2013). Yet this work is contested and systematic economic studies are scarce (see Park and Clayton, 2003; Togo, 2015);[8] despite the episode's magnitude, its contribution to industrial development remains poorly understood (Woo, 1991; Glassman and Choi, 2014).

We provide the first empirical analysis of this episode, quantifying military demand's impact on South Korea's export development. We examine how wartime procurement and other demand shocks associated with U.S. alliances shaped industrial development. In doing so, we contribute to the literature on geoeconomics (Clayton et al., 2023; Mohr and Trebesch,

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7 For rare quantitative evidence on U.S. assistance and Japanese postwar growth, see Beckley et al. (2018), who locate the decisive turn in the consolidation of the U.S.–Japan alliance in 1957–58 rather than in Korean War procurement itself.

8 The best work on this often comes from Korean- and Japanese-language scholarship. See excellent qualitative work by Kimiya (1996) [in Japanese] and Joo (2018) [in Korean].

2025),[9] and join work on the geopolitics of trade and capital flows (Kleinman et al., 2024; Horn et al., 2024), highlighting how these forces shape firm development. By emphasizing foreign demand and geoeconomic forces, we also complement work on domestic industrial policy and national policy interventions.[10]

Second, we contribute to research in development economics and international trade on the role of demand in firm growth and industrial development. We use U.S. defense procurement as a foreign demand shock and trace its effects on Korean firms' subsequent export trajectories. Our findings also complement evidence on demand-side policies in developing economies (Ferraz et al., 2015; Mensah et al., 2026), on the effects of export demand on productivity and economies of scale (Goldberg and Reed, 2023; Hanlon, 2020; Mitrunen, 2025), and on the gains firms realize from becoming suppliers to large foreign buyers (Alfaro-Ureña et al., 2022). Whereas recent experiments identify the short-run effects of foreign market access (Atkin et al., 2017; Ali et al., 2025), we show that an initial demand shock can generate persistent gains in export capacity and industrial upgrading. In doing so, we extend the literature on the domestic effects of defense spending and public procurement to a low-income setting where the demand shock originates from a foreign government's defense spending.[11] Our emphasis on the developmental impact of demand-side forces adds to renewed interest in procurement and industrial development policy, including the role of procurement in welfare (Di Giovanni et al., 2022), innovation (Slavtchev and Wiederhold, 2016), and productivity (Ilzetzki, 2024).

Third, a longstanding debate in development economics centers on the effects of aid and external transfers (Angelucci and De Giorgi, 2009; Casey et al., 2012; Qian, 2015; Dreher et al., 2017; Egger et al., 2022). The scale of U.S. aid in South Korea was enormous: between 1946 and 1978, the country received $12.6 billion in American military and economic assistance compared with $6.9 billion for Sub-Saharan Africa as a whole.[12] Our evidence speaks to the debate on the growth effects of Western economic interventions in low-income countries by studying a concrete channel via which the U.S. impacted economic development in South Korea: preferential access to U.S. procurement contracts for Korean firms. The large effects of procurement underline the importance of programs beyond fiscal transfers and suggest lessons for modern programs that seek to promote exports in developing countries, such as the African Growth and Opportunity Act (AGOA).

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9 Following a long social science tradition, Clayton et al. (2023) defines geoeconomics as the use of "countries' economic strength from financial and trade relationships to achieve geopolitical and economic goals."

10 Lane (2025); Choi and Levchenko (2025); Kim et al. (2021).

11 Variation in defense spending has been used to estimate the domestic aggregate effects of fiscal policy (Brunet, 2024; Nakamura and Steinsson, 2014; Ramey and Shapiro, 1998; Ramey, 2011a,b).

12 By comparison, Taiwan received $5.6 billion. See Figure A.1 in the appendix. Despite the enormous scale of aid we document, East Asia is often cited as a counterpoint to perceived aid dependency elsewhere (Easterly, 2003).

Layout. Section 2 provides the historical background on the U.S. procurement boom during the Vietnam War. Section 3 describes the data and presents summary statistics. Section 4 outlines the empirical strategy. Section 5 presents the main results. Section 6 explores mechanisms. Section 7 concludes.

2 Historical context

American war procurement was a first-order force in Cold War East Asia's industrialization, and South Korea's share of the Vietnam-era boom was a geopolitical bargain: procurement dollars in exchange for combat troops. The contracts themselves were awarded through a nominally American-controlled bidding process that the Korean state, in practice, extensively steered. Both facts shape the analysis that follows: the first motivates the question, and the second raises the selection concern—who won was partly a policy choice—that our empirical strategy confronts directly.

2.1 War procurement helped power the East Asian miracle

War procurement spurred by America's conflicts during the Cold War played an important, though often overlooked, role in shaping East Asia's industrial development. The demand booms from the Korean and Vietnam Wars, along with broader U.S. military spending, profoundly altered the economies of allied countries across the Asia-Pacific. In the 1950s, the Korean War helped catalyze growth in Japan, whose economy had been teetering on the brink of recession (Johnson, 1972, p.23; Dingman, 1993). War procurement specifically is credited with reviving the Japanese automobile industry—a cornerstone of Japan's reindustrialization—through a surge in purchases from Nissan, Isuzu, and most famously Toyota, which was on the brink of failure before an American order for 1,000 trucks.

In the 1960s, America's massive military spending on the Vietnam War reached well beyond South Vietnam itself, channeling substantial dollar flows to newly industrializing nations, including South Korea, Taiwan, Singapore, Thailand, and the Philippines (Central Intelligence Agency, 1969). South Korea was a particularly significant beneficiary. Its Western-allied president, Park Chung-hee, struck a deal with the United States to deploy Korean combat and non-combat troops to South Vietnam in exchange for substantial economic benefits: American procurement of Korean "supplies, services, and equipment" plus $150 million in additional aid (Woo, 1991). This arrangement was formalized in the Brown Memorandum of March 4, 1966 (Frentzos, 2013).

The deal with the United States was a major economic and diplomatic coup for Park Chung-hee's regime (Halloran, 1970). When Park seized power in 1961, South Korea was heavily dependent on American support; U.S. aid was equivalent to 12% of South Korea's GDP, covering 73% of its imports (Woo, 1991). From the U.S. government's perspective, the South Vietnam deal served two major purposes. First, military procurement could compensate for an expected reduction in American aid, and second, it would bind South Korea geopolitically to America's security apparatus (Frentzos, 2013). South Korea ultimately sent 350,000 troops to South Vietnam, making it the second-largest contributor of forces on the non-communist side after the United States.[13]

The Vietnam War presented a major growth opportunity for fledgling Korean companies (Park and Clayton, 2003). These companies secured lucrative procurement contracts in two key areas: manufacturing goods in South Korea for the American war effort and providing services directly in South Vietnam:

> The major forms of U.S. commercial assistance were procurement of war supplies in South Korea and construction/service contracts for R.O.K. firms in Vietnam. Among the major South Korean exports to Vietnam were military uniforms, jungle boots, corrugated metal roofing and cement. In the construction and service field, at one point more than eighty South Korean companies held contracts with the U.S. government in Vietnam. Their activities included construction and engineering, transportation of goods, and operating service facilities such as laundry shops and entertainment clubs (Baldwin, 1975).

The Vietnam War was profitable for the emergent *chaebols* (Kim et al., 2011), family-owned business conglomerates with close links to the state. One firm that benefited significantly from war procurement was Hyundai. Throughout the 1960s, Hyundai's construction arm completed numerous war-related construction contracts that escalated in scale: from the construction of the Pattani–Narathiwat Highway in Thailand from 1965 to 1968, to the dredging of South Vietnam's Cam Ranh Bay, to eventually the building of U.S. military bases in Guam from 1969 to 1975 (Glassman and Choi, 2014). From 1963 to 1966, military contracts accounted for 77% of Hyundai's total profits. Importantly, the experience gained by Hyundai's engineers and managers provided a springboard for the company to begin winning lucrative construction contracts in the Middle East in the 1980s (Steers, 1998).

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[13] These forces—described as "mercenaries" by U.S. officials who sponsored South Korea's role in the war (Baldwin, 1975)—were implicated in numerous war crimes, including the massacre of at least 9,000 South Vietnamese civilians throughout the war.

This paper builds on the substantial qualitative literature documenting the benefits of the war procurement boom, providing the first *quantitative* estimates of the effect of war procurement on firms in East Asia.

2.2 The Korean state steered a nominally American contract process

In theory, contract procurement was supposed to be controlled by the U.S. military. Proposals over $10,000 were first sent to a U.S. estimator and an Independent Government Cost Estimate (IGCE), which would then be forwarded to American military units: the U.S. Korean Procurement Agency (KPA), a unit of the Eighth Army, for in-Korea procurement, or the Far East District of Engineers for out-of-country procurement (House of Representatives, 1978). The KPA would then compile a list of bidders (usually ten or so in a request for proposals), supplied from the Korean Ministry of Commerce and Industry. Contractors submitted sealed bids, which were unsealed simultaneously. Bidders would negotiate over price and contract specifications; then an American contracting officer would pick the winning contract. For payment, U.S. dollars would be routed to the Bank of Korea, which paid the contractor in Korean *won*.

In practice, however, the Korean state made extensive efforts to influence the in-country procurement process (House of Representatives, 1978; Jones and Il, 1980). Korean nationals in the KPA office would regularly leak information to the Korean government, which would then coordinate firms through industry organizations to collude on their bids (U.S. congressional researchers also suspected the involvement of the Korean Central Intelligence Agency, or KCIA). Typically, one firm would be chosen to be the winner, and the other firms would collectively submit bids that were too high to be competitive. This collusion allowed the Korean state and firms to maximize their inflow of valuable U.S. dollars.

In effect, then, American procurement contracts acted as a form of joint Korean-American industrial policy—the American military set the demands, and the Korean government usually picked the winners. It is also well-documented that the Korean government supported exporters with a wide range of policy instruments, including heavily discounted real interest rates and privileged access to foreign exchange (Woo, 1991). The observed effect of winning an American procurement contract can thus be interpreted as the combined effect of increased exporting to the United States in the context of broad industrial policy support for exporters by the Korean government.

From an identification perspective, this state involvement raises concerns that contract winners may differ systematically from losers. For instance, the wartime export success of *chaebols* like Hyundai suggests that political connections may have influenced contract selection (Glassman and Choi, 2014). We address this empirical concern in Section 4.1, by

analyzing the Korean state's expectations of future firm growth through its annual export targets. First, we describe the data that let us follow firms, contracts, and exports over time.

3 Data

Table 1 summarizes our data sources. We construct a firm-level dataset for South Korea covering 1959–1977. We digitize two annual archival directories—one compiled by the government's trade promotion agency, the other by the exporters' own trade association—and link them to the U.S. Department of Defense's archive of procurement contracts. Our data expands the study of Korean firms to the 1960s, the crucial first decade of its growth takeoff.[14] The panel begins six years before the first procurement contract and ends three years after the last, so we observe firms across the full episode. It also records the export plans that firms and the Korean government set jointly for the year ahead, which we use to test the identifying assumptions of our design.

After entry, cleaning, and record linkage, our panel contains 3,803 firms, of which 289 are linked to a U.S. military procurement contract and 3,514 are never treated. This section describes the sources, sets out what each measures and over which years, and presents the descriptive patterns that motivate the analysis.

3.1 Sources

Extensive margin and product scope: The Korea Trade Directory (KTD). Our main *extensive margin* outcome variable—whether or not a firm exports—comes from the Korea Trade Directory (KTD), the Korean Traders Association's annual catalog of all registered exporters and importers in the country. We digitized the 1959–1976 editions of the KTD, where each edition has three components: (1) a firm directory listing every registered trader; (2) a product-level list of the firms exporting a specific product; and (3) a product-level list of the firms importing each product.

The KTD has a uniquely long panel, starting in 1959, well before the procurement boom, allowing us to observe more pre-periods for treated firms. Moreover, the product-level lists of trading firms allow us to observe the effects of procurement on the scope and kind of products exported. However, the KTD reports no revenues or trade values, which requires us to digitize other data to analyze the intensive margin (export values).

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[14] Relative to Kim et al. (2021), we add 1959–1966, 1970, and 1972; relative to Choi and Levchenko (2025), we add 1959–1969.

Intensive margin: The KOTRA Comprehensive Export Directory. Our main *intensive margin* outcome variable—the value of a firm's exports—comes from the *Comprehensive Export Directory*, published by the Korea Trade Promotion Agency (KOTRA).[15] KOTRA assembled the Export Directory from the reports firms were required to file with the Ministry of Commerce when obtaining or renewing an export license. The volumes list company identifiers, products, export values, destinations, and export targets. Export values are reported in nominal U.S. dollars.

The KOTRA Export Directory allows us to observe *how much* a firm exported, with an unusual level of granularity for the time period: exports are broken out by destination and by product category. However, because this dataset is only available from 1968 to 1977, we can only observe pre-treatment outcomes for firms treated in 1969 or later. This limits the sample of treated firms when analyzing the intensive margin.

Treatment data: DD-350 procurement forms. The central treatment in our analysis is winning an American military procurement contract. We measure this using the U.S. Department of Defense (DoD) Military Prime Contract Files, which record individual procurement actions for fiscal years 1966–1975. Purchases range from uniforms and "guard services" to surface-to-air missiles. Each record (known as a DD-350 form) reports the contractor's English name, country of origin, the type of good or service procured, the dollar value of the action, and the fiscal year of award.[16] From fiscal year 1968 onward, the files record only contracts above $10,000.[17]

Ancillary data: Korea Business Directory. Our two main sources of outcome data allow us to track the time variation in exporting for firms that ever export between 1959 and 1976—the main firms of relevance to our analysis. To increase the representativeness of the data further, we also include in the panel firms that occur in the Korea Business Directory, which we digitize for the years 1966–67, 1967–68, and 1968–69. The 1966–67 edition includes a directory of manufacturers that may never export between 1959 and 1976.

Ancillary data: UN Comtrade data. As a supplementary analysis, to measure the effects of procurement at the sector level, we use sector-level trade data from the UN Comtrade

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[15] Established in 1962, KOTRA was the government's central body for promoting and monitoring trade, operating a network of overseas offices in 87 countries staffed by Korean bureaucrats (Barteska and Lee, 2025).

[16] We convert fiscal to calendar years. Before 1976 the U.S. fiscal year ran from July 1 to June 30, so fiscal year t spans July $t-1$ through June t; we assign each contract to calendar year $t-1$, which avoids attributing effects to years before a contract was awarded. Our procurement data end at fiscal year 1975 (calendar 1974), before the 1976 shift to an October–September fiscal year.

[17] Coverage of small contracts is therefore more complete at the start of the procurement boom than later in it.

database, which reports four-digit SITC (Revision 1) export values for the period 1962–1984. We measure annual nominal exports of each four-digit product to the world and to the United States, and we link products to U.S. procurement by mapping Federal Supply Classification codes to SITC categories.

3.2 Panel construction

Firm identifiers and record linkage. The sources share no common firm identifier. Firm names appear in English throughout, so building the panel requires linking English transliterations of Korean firm names across editions and across sources, where romanization is inconsistent and distinct Korean names can transliterate identically. We link names in stages. A deterministic pass first corrects OCR and formatting artifacts. Names are then collapsed into a coarse blocking key that strips legal suffixes and business-descriptor words and applies a fixed set of Korean-romanization substitutions (e.g., OO→U, AE→A, CK→K, WH→HW); firms sharing a key are grouped and assigned the group's modal spelling as their canonical name. Names observed in only a single year are then linked to a multi-year group by edit distance on the blocking key, subject to a strict distance threshold. What remains—romanization variants combining several simultaneous letter changes, business-group subsidiary reorganizations—is adjudicated by hand against an override table, with every merge logged for audit. The same procedure links procurement contractors to firms.

Throughout, where a candidate pair is ambiguous, we match it.[18] For firm identity across directory years, this maximizes stability: a firm matched in 1968, 1970, 1971, and 1973 but not in 1969 and 1972 would otherwise appear to exit and re-enter, a spurious jump that could correlate with treatment.

For procurement contracts, the same rule follows from the relative cost of the two errors it can produce. A missed first contract shifts a firm's estimated treatment date in no predictable direction. A spuriously early match, by contrast, has a predictable cost: it attenuates the estimated treatment effect in the contract's first few years, an attenuation that fades as effects stabilize. We accept that smaller, one-directional bias over the risk of missing a firm's true first treatment altogether—for instance because its name had not yet standardized, or because a subsidiary spun off from an established contractor is not yet linked to it: any bias the procedure introduces runs toward zero.

Unit of observation and sample. The estimation panel is at the firm-year level and is balanced: one observation per year for 3,803 firms, of which 289 are ever linked to a pro-

[18] The one exception is a name that collapses to a generic stub shared by several genuinely distinct firms (e.g., `KOREA`, `ORIENTAL`); nothing distinguishes among the candidates, so no match is made.

curement contract. Firms enter the universe if they appear in at least one edition of any source. For years in which a given data source exists but a firm does not feature in it, that firm's value for the corresponding variable is coded as *zero* rather than missing. For exports, this reflects the underlying data-generating process on both sides: the KTD's stated purpose is to list all (potential) Korean exporting and importing firms, and the separate Export Directory was compiled from mandatory license filings, so non-appearance in either source indicates no licensed exports that year, not an unobserved firm. The same logic applies to procurement contracts: for years covered by the DoD contract records, a firm absent from them is coded as zero contract value, and the treatment indicator is defined directly from that value—equal to one whenever it is positive.

3.3 Outcome variables

Extensive margin and product scope. We define a firm as an exporter—our main extensive margin outcome—if it is listed as exporting at least one product in the KTD's product-level records. Furthermore, we define a firm's "product scope" as the number of products for which it is listed as an exporter. We construct analogous import outcomes from the corresponding import records.

Intensive margin. To place all firm-years on a common log scale while preserving the balanced panel, we apply a floored log transformation in the spirit of Chen and Roth (2023), who show that $\log(1 + x)$ and inverse hyperbolic sine transformations yield estimands that depend arbitrarily on units when zeros are present. Let y_{it} denote the outcome for firm i in year t:

$$y_{it} = \begin{cases} \log(100{,}000), & \text{if exports}_{it} \leq 100{,}000, \\ \log(\text{exports}_{it}), & \text{otherwise.} \end{cases} \tag{1}$$

The floor sits just below the 10th percentile of positive export values in our sample ($108,000). All firm-years at or below it—including zeros—take the minimum value on the adjusted scale, so the estimand is the effect on intensive margin *above* the floor. Because movements entirely below the floor are absorbed, genuine effects on small exporters are set to zero and the estimates are conservative. Conversely, a firm starting to export, e.g., $200,000 from zero, registers. We view this as a feature, as the fact that this firm exports $200,000 instead of $100,000 is clearly an intensive margin increase.

Export targets. The Export Directory also reports the target each firm was required to file for the coming calendar year, available for 1970–1972. This target is a contemporaneous,

administratively recorded measure of what the firm and the government *expected* exports to be. As we discuss in Section 4.1, targets for year $t + 1$ were set jointly by firm and government in year t and track realized exports in year $t + 1$ closely. For firms treated in year $t + 1$, targets for that year are filed before the firm learns of the contract awarded. Thus, targets let us test anticipation directly rather than infer it from pre-trends: firms and the government did not expect the export growth we later attribute to procurement, which directly supports the parallel trends assumption underlying our identification strategy: no difference in targets in $t + 1$ for firms treated that year indicates that—in the absence of the treatment—counterfactual exports for these firms would have evolved in parallel with the control group.

3.4 Matching firms to contracts

Between 1965 and 1974 the DD-350 archive records 9,248 procurement actions with Korean contractors, worth $772.5 million. We link these to firms in the panel on English transliterations of contractor names, using the procedure of Section 3.2. Contractor names collapse to 764 distinct spellings, of which 507 (66%) match to a firm already in the panel through that procedure.

Of the $772.5 million archive, $425.7 million is matched to a single firm in the panel, and a further $15.1 million to two firms jointly, where a contract lists two matched partners and we credit the full value to each—together, $440.8 million (57%) captured in the panel. The remaining $331.8 million could not be linked to a firm in the panel, largely reflecting foreign contractors—American construction and logistics firms operating in Korea, such as Vinnell and Morrison Knudsen—that have no Korean export presence to match against.

As described in Section 3.2, this procedure is deliberately loose: an ambiguous contractor-to-firm pair is matched rather than left unlinked. The two matching errors this can produce are not symmetric. Missing a firm's true first contract biases its estimated treatment effect in no predictable direction, since the misclassified pre-treatment years could show outcomes either above or below the firm's true counterfactual path. Wrongly assigning a contract to a firm that was not yet treated, by contrast, generally attenuates the estimate: some genuine controls, or firms truly first treated later, are recorded as treated earlier than they were, diluting the treated group with untreated outcomes and pulling early post-treatment estimates toward zero. We accept this more predictable, one-directional cost over the risk of missing genuine early treatment altogether.

3.5 Descriptive statistics

The procurement shock. Panel (a) of Figure 1 shows the total value of U.S. procurement contracts as a share of Korean GDP. Contract value rose from near zero in 1965 to a peak of nearly 3% of GDP in 1968 ($180 million), then fell to 1.3% by 1970 and below 1% in 1971. At its peak this was a fiscal shock comparable to Marshall Plan transfers, which averaged roughly 2% of GDP among recipient countries (Eichengreen, 2010).

The export takeoff. The same years saw the beginning of Korea's *Miracle on the Han* (Woo, 1991). Panel (b) plots Korea's aggregate exports based on Comprehensive Export Directory totals. Exports grew 17.3-fold in the years of the procurement boom (1964–1974)[19]—an annualized growth rate of 33.0%. As a share of the overall economy, exports grew from just 5.0% of GDP in 1964 to over 21.8% in 1974.

Summary statistics. Table 2 reports annual summary statistics from the two firm-level trade sources. Panel A summarizes the Comprehensive Export Directory for 1968–1977. Over this period, total exports in the panel increased sixteenfold, from approximately $410 million to $6.569 billion, equivalent to an annualized growth rate of 36%. The number of firms with positive exports more than doubled, from 505 to 1,131, while mean exports among exporting firms rose from $813,000 to $5.8 million; the median increased similarly, from $285,000 to $2.0 million. Thus, in a simple accounting decomposition, growth in exports per active exporter contributed more to aggregate export growth than did growth in the number of exporters.[20] Panel B summarizes the Korea Trade Directory for 1959–1976, extending the record of firm export participation nine years before export values become available. The number of firms appearing in the KTD increased from 427 in 1959 to 1,310 in 1976, while the number identified as exporters rose from 333 to 643. Products exported per exporter fluctuated considerably over the period but showed little net change, rising from 4.08 in 1959 to 4.42 in 1976.

The scale of procurement relative to exports. Table 3 puts the procurement shock in firm-level perspective. The first block summarizes procurement among recipient firms: the number receiving contracts in each year and the mean and median value of their firm-year procurement totals. Procurement reached 177 firms in 1968, when mean procurement per recipient was $543,000 and the median was $98,000, indicating a strongly right-skewed distribution. The second block restricts attention to contractors observed in the export-value

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19 Based on World Bank data of Exports of goods and services (constant 2015 US$) (NE.EXP.GNFS.KD).

20 Means and medians are computed over firms with positive exports that year; N counts all firms in the balanced panel.

sample and compares their procurement with firm exports. Procurement equaled 13.7% of all sample exports and 36.6% of treated firms' exports in 1968, but these shares fell to 0.7% and 2.0%, respectively, by 1973. This rapid decline provides a benchmark for the treatment effects estimated below: persistent export responses would be difficult to explain solely by recording the direct value of procurement as exports. Table A2 in the appendix shows a similar pattern using national export data from UN Comtrade beginning in 1965.

To what extent did the Vietnam War, in particular U.S. military procurement, contribute to this export expansion? We empirically explore this question next in Section 4.

4 Empirical strategy

Our design traces firm exports around the award of a first procurement contract, comparing firms treated at different times in a staggered event study. Identification requires that the timing of a firm's first contract be unrelated to its counterfactual export path—precisely what the Korean state's hand in picking winners calls into question. A unique feature of our data, the government's firm-level export targets, lets us test this concern directly.

Design. We estimate the impact of U.S. military procurement on firm-level export development during the East Asian miracle. Our empirical strategy uses cross-firm variation in the timing of each firm's first procurement contract to trace how exports evolve after the initial award of a contract. Specifically, we estimate dynamic effects using a staggered event-study design and consider the following specification:

$$y_{i,t} \;=\; \sum_{h \neq -1} \tau_h \, \mathbb{1}\{K_{i,t} = h\} \;+\; \theta_i \;+\; \kappa_t \;+\; \varepsilon_{i,t}, \tag{2}$$

where $y_{i,t}$ denotes firm i's exports in year t; θ_i and κ_t are firm and year fixed effects, respectively; and $\varepsilon_{i,t}$ is the error term. Let G_i be the year of a firm's first contract, such that $K_{i,t} = t - G_i$ is the number of years since treatment. The indicator $\mathbb{1}\{K_{i,t} = h\}$ equals one if firm i is at event time h in year t, and zero otherwise. Treatment is absorbing: once $t \geq G_i$ (i.e., $h \geq 0$), the firm remains treated. The reference period is $h = -1$, which corresponds to the last pre-treatment year.

Our outcome variables $y_{i,t}$ capture firm-level exporting behavior and are constructed from the two digitized trade sources described in Section 3.1. Our primary extensive-margin outcome is whether the KTD lists a firm as an exporter of at least one product in a given year. We measure the intensive margin using nominal export values from the *Comprehensive Export Directory*, imposing a lower bound on small or zero observations. This transformation

retains a balanced panel while deliberately excluding variation at low export levels, including extensive-margin variation, and therefore produces conservative intensive-margin estimates appropriate to our setting (following Chen and Roth 2023).

We estimate the dynamic sequence of average treatment effects using the two-way fixed effects (TWFE) estimator as well as the estimator proposed by Callaway and Sant'Anna (2021) (CS). The CS estimator is designed for staggered adoption: it imputes untreated potential outcomes without drawing on already-treated firms, and we take never-treated firms as its control group. We use firm-clustered standard errors throughout.

Interpreting the estimand. Our coefficients of interest, τ_h, capture the average effect of treatment h years after receiving the first contract. Practically, τ_h combines the effect of the initial award bundle—see Section 2.2—with the consequences that naturally follow—follow-on awards, greater foreign credibility, learning, and related support—which are part of the treated potential-outcome path. Hence, τ_h should be read as the dynamic effect of crossing into the *ever-awarded* state h years earlier, not the impact of a one-off contract. The absorbing-state design also gives each treated firm a single cohort date G_i with event time $h = t - G_i$: under CS, counterfactual outcomes are constructed only from never-treated observations, while TWFE also draws implicit comparisons from already-treated firms. We therefore report both estimators in the event-study figures below.

We summarize the dynamic estimates by averaging τ_h over a post-treatment window. For outcomes from the *Korea Trade Directory* we average over $h = 3$ to 7, the range over which the extensive-margin path has stabilized; the event-study figures report every event year from $h = -6$ to 10, so this window summarizes the estimated path rather than selecting within it. The same $h = 3$ to 7 window is used when pooling division-level estimates (Figure 7, **??**) and when testing equality of goods and service contracts (**??**). For outcomes from the *Comprehensive Export Directory* we average over $h = 0$ to 4, the longest horizon the panel supports while remaining mostly balanced: export values begin in 1968 and end in 1977, and the 1974 cohort is observed only through $h = 3$.

Identifying assumptions. Our estimator identifies dynamic treatment effects under the standard assumptions of (i) parallel trends and (ii) no anticipation. Let $Y_{it}(0)$ be firm i's potential exports in the absence of treatment, and let G_i denote the year in which firm i first receives a procurement contract. In the absence of treatment, exports reflect firm characteristics, market-wide conditions, and temporary firm-specific factors u_{it}: $Y_{it}(0) = \theta_i + \kappa_t + u_{it}$. Formally, these assumptions are:

$$\text{(i) } \mathbb{E}[Y_{it}(0) \mid \theta_i, \kappa_t, G_i] = \theta_i + \kappa_t \quad \text{for all } i, t, \qquad \text{(ii) } Y_{it} = Y_{it}(0) \quad \text{for } t < G_i.$$

Parallel trends require that the *timing* of adoption is not driven by transitory, unit-specific fluctuations; equivalently, $\mathbb{E}[u_{it} \mid G_i] = 0$. Treated firms and control firms may differ in time-invariant characteristics (e.g., political connections, captured by θ_i), while the volume of procurement contracts may vary over time with aggregate conditions, such as the business cycle or the intensity of the Vietnam War (captured by κ_t). See Section 2.2 for further discussion.[21]

In our setting, threats arise if short-run idiosyncratic movements u_{it} drive the timing of awards. For instance, this may occur if contracts target firms following short-run export spikes (lasting a couple of months), i.e., $\mathbb{E}[u_{it} \mid G_i = t] > 0$, or if firms pursue contracts ahead of anticipated export declines, i.e., $\mathbb{E}[u_{i,t+1} \mid G_i = t] < 0$. The assumption also fails if cohort-specific shocks that are not absorbed by κ_t (e.g., sector × year demand shifts) are correlated with G_i, so that $\mathbb{E}[u_{it} \mid G_i = t, \text{sector} = s] \neq 0$. Although such threats are often difficult to test directly, our export-target data let us probe timing, selection, and anticipation concerns below.

4.1 Validating the design with export targets

In this section, we assess the identifying assumptions underlying our empirical strategy by exploiting a unique feature of our data: firm-level export targets. These targets summarize contemporaneous expectations of firms' export performance, allowing us to test whether idiosyncratic export shocks influenced the timing of procurement and whether firms anticipated treatment. Because targets record expectations formed before treatment, they let us observe pre-treatment expectations directly rather than infer them from pre-trends alone.[22] We find no evidence in support of either concern.

The targets were an important policy instrument for promoting exports, with government support closely tied to both target setting and target attainment. For example, the government identified profitable export markets and provided both quantifiable and non-quantifiable forms of support—including subsidized loans and other discretionary incentives—to encourage firms to meet or exceed their export targets (Jones and Il, 1980; Westphal, 1977, 1990). President Park Chung-hee famously held monthly meetings to plan

[21] A natural concern for our identification strategy is that firms selected for procurement contracts may have differed systematically from firms that were passed over. As discussed in Section 2.2, this concern is particularly plausible given that the Korean government likely coordinated procurement through the Korean Military Contract Association (KMCA) (House of Representatives, 1978).

[22] Section 5 investigates pre-trends and finds them to be parallel across outcome variables.

the country's export promotion strategy, in which the aggregate targets were featured as an important policy variable.[23]

Export targets for firm i are set in period $t-1$ for period t, and are denoted by $T_{i,t}$. Let $\mathcal{I}_{i,t-1}$ be the information available when the target is set. Formally, targets are (possibly noisy or biased) expectations of next year's exports:

$$T_{i,t} \;=\; \mathbb{E}\big[Y_{i,t} \mid \mathcal{I}_{i,t-1}\big] \;+\; v_{i,t},$$

where $\mathbb{E}[Y_{i,t} \mid \mathcal{I}_{i,t-1}]$ is the conditional expectation given period-$t-1$ information, and $v_{i,t}$ collects "stretch" or policy bias and forecast error.[24]

In our setting, export targets are informative regardless of whether they were unbiased forecasts ($\mathbb{E}[v_{i,t}] = 0$) or normative, aspirational goals ($\mathbb{E}[v_{i,t}] \neq 0$). In either case, they were set before the start of the year and therefore reflect only information available prior to treatment.

4.1.1 Targets track realized exports

To use targets for identification, we first verify that they have predictive content for next year's exports. Specifically, do targets set before the year begins line up with realized exports? Targets may not align with realized outcomes if firm performance is difficult to predict or if targets are poorly calibrated to economic conditions.[25]

Panel (a) of Figure 2 shows the relationship between realized exports and year-ahead targets. For each year t, we plot firm i's log realized exports $\log Y_{i,t}$ against log year-ahead targets $\log T_{i,t}$, set in $t-1$. Importantly, these two series come from government publications for different years: $T_{i,t}$ is published one year before $Y_{i,t}$. The red line represents the 45° line, the benchmark for perfect forecast accuracy. We find that 44% of observations lie above this line (exports exceed targets) and 56% lie below (targets exceed exports). Overall, observations cluster around the 45° line: Korean firms' realized exports generally followed their targets.

Panel (b) of Figure 2 plots the empirical distribution of forecast errors $\log Y_{i,t} - \log T_{i,t}$. The distribution is clustered roughly around zero, with a mean of -0.181, a median of

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[23] Adjacent to the Minister of Commerce and Industry's office was an *Export Situation Room*, designed to identify potential export shortfalls in real time. A dedicated staff maintained near-daily contact with major exporters, and the Minister would frequently intervene when firms appeared at risk of missing their export target levels (Westphal, 1977).

[24] For instance, some firms may report excessively optimistic targets in order to secure larger subsidies or satisfy government expectations.

[25] Further, they may not align with realized outcomes if they were not meant to predict firm performance. E.g., one might imagine them to solely be part of a mechanism to favor certain firms.

−0.093, and a standard deviation of 0.989. The negative mean indicates that, on average, realized exports undershoot targets by approximately 17%. At the median, realized exports undershoot targets by approximately 9%. These patterns suggest that targets contained substantial noise and were sometimes overly ambitious. Nevertheless, they were achievable on average and tracked realized exports closely enough to carry real predictive content.

Thus, targets contain reasonable predictive content about future exports. These targets were not pure forecasts—they also reflected normative industrial policy goals—but their predictive value makes them a useful proxy for expectations in the absence of contract awards.

4.1.2 Targets show no evidence of anticipation

We then analyze whether procurement awards were anticipated. We use event time h (years relative to treatment) and compute cohort means for the sample of treated firms. Let $\bar{T}_h$ denote the mean target that applies to event year h; each such target is set one event year earlier, in $h-1$. We compare $\bar{T}_h$ across event years -1, 0, and 1.

If the government or the firm anticipated the award and its effect on exports, the targets for the award year would increase: $\bar{T}_0 > \bar{T}_{-1}$. Conversely, if the award was unanticipated, targets would be similar across $h = -1$ and $h = 0$, i.e., $\bar{T}_0 \approx \bar{T}_{-1}$, even if realized exports jump, i.e., $\bar{Y}_0 > \bar{Y}_{-1}$.

Figure 3 presents this analysis graphically, and shows evidence that contracts were unanticipated. Most importantly, export targets for the first treatment year—year 0—remain virtually unchanged from one year earlier, even as realized exports begin to rise: expectations stayed flat while outcomes moved. We also observe a *delayed* increase in targets after the award year ($h = 1$), newly incorporating information from the treatment period (including the awarded contract and realized export increases during that period).[26] This lagged pattern—flat at implementation, and an increase post-treatment—is consistent with contracts not being targeted to firms with expected export increases, which weighs against key potential channels of reverse causality. Instead, firms and the government update expectations after, not before, the award.

Taken together, the patterns in Figure 3—parallel evolution in the treatment year, and lagged updating—support our identifying assumptions. In particular, treatment timing appears unrelated to expected changes in exports. We next use equation (2) to estimate the causal effect of receiving a procurement contract.

[26] Our discussion here focuses on stark patterns in the point estimates. Due to targets being available only for 1970, 1971, and 1972, statistical power in these comparisons is somewhat limited.

5 The effect of procurement contracts

Winning a first U.S. procurement contract durably transformed Korean firms into exporters. Treated firms become 14.7 percentage points more likely to export and expand their export values by around 40%, with effects that build for five years and persist beyond the war. The gains reach beyond American and Vietnamese demand: firms enter new destination markets, add new products, and shift their export mix from primary commodities toward light manufactures. The effects are also large enough to matter in the aggregate. Our estimates attribute to procurement roughly a tenth of Korea's exporters and of sample exports in 1973.

5.1 Procurement contracts increase exports

Figures 4 and 5 plot the main event-study estimates τ_h from equation (2) for the effect of a firm's first U.S. military procurement contract on exports. Table 4 reports the average treatment effect on the treated (ATT), aggregated over several event years.

Contracts turn firms into exporters. A first procurement contract raises a firm's probability of exporting by 14.7 percentage points on average three to seven years after the award, statistically significant at all conventional levels (Table 4). As defined in Section 3.3, a firm exports in a given year if the KTD's product-level records list it as exporting at least one product. Panel (a) of Figure 4 traces the dynamics of this *extensive margin*. Before $h = 0$, pre-trends are flat: the coefficients are small and almost always statistically indistinguishable from zero, supporting our parallel trends assumption. Starting in $h = 0$, the year of the first contract award, the probability of exporting increases over five years before stabilizing between event years four and ten; from event year two onward, the estimates are statistically distinguishable from zero.

Contract winners export more. On the intensive margin, treated firms' exports are 40% higher on average over the five years starting with the treatment year, statistically significant at the 10% level.[27] Panels (b) and (c) of Figure 4 report these effects.[28] Panel (b) plots effects on exports to any destination country. Coefficients in period −2 are close to 0—further

[27] Percentage effects for log outcomes are $100 \times (\exp(\hat{\beta}) - 1)$.

[28] As intensive-margin export outcomes are only available starting in 1968, we estimate these effects for firms treated in 1969 or later—thus excluding from the analysis firms treated before 1969—with never-treated firms as the CS control group. Hence, the sample of treated firms is substantially smaller in these estimations.

alleviating concerns about differential trends. Exports increase immediately, with effects growing until four years after the treatment.

The gains are not procurement bookkeeping. One natural concern is that our results are purely mechanical: when a firm wins a procurement contract, the award itself might be recorded as exports to the United States or South Vietnam. To address this, Panel (c) reports effects of procurement contracts on export values to East and Southeast Asia, excluding Vietnam—markets with no direct U.S. military demand. The gains remain: exports to these destinations are 48% higher on average over the five years starting with the first contract year, statistically significant at all conventional levels, although the effects accumulate more slowly. Since these estimations exclude exports to both the U.S. and Vietnam, the export effects do not primarily reflect sales to the U.S. military or the U.S. market. Contract winners thus export more, and not merely to their contracting customer. What did they export, and to whom?

5.2 Contracts broaden and upgrade the export mix

Procurement contracts did more than scale up firms' existing export lines. This subsection documents two further findings: treated firms widen their export scope, adding destination countries and products, and they upgrade what they sell, reorienting from primary commodities toward light manufactures.

Contracts widen destination country scope. Contract winners eventually reach substantially more markets, though the gains take several years to emerge. Panel (a) of Figure 5 plots the effect of contracts on the number of destination countries in levels: estimates are positive but imprecise through event year three, then rise sharply and become statistically significant in event years four and five.

Panel (b) shows that the expansion reaches higher-income Western destinations, excluding the United States. This margin is informative about capability: richer destinations demand more sophisticated, higher-quality goods, so entering them typically requires firms to upgrade product quality and production capabilities (Verhoogen, 2023). Panels (c) and (d) repeat both exercises with the number of destinations transformed by the inverse hyperbolic sine and show a similar pattern.

Product scope expands; importing barely responds. Treated firms also export more products: on average, product scope is 20%[29] greater three to seven years after a firm's first

[29] Percentage effects for inverse hyperbolic sine outcomes are approximated by $100 \times (\exp(\hat{\beta}) - 1)$.

contract, statistically significant at all conventional levels. Panel (e) of Figure 5 reports these effects on the number of distinct products exported—transformed using the IHS. Pre-trends are parallel, and the positive effects accumulate over time while remaining almost always statistically distinct from zero.

Panel (f) contrasts these findings with changes in firms' probability of importing around their first procurement contract. Estimated treatment effects on importing are positive but substantially smaller than the corresponding effects on exports.

The strong export-scope responses and muted import responses suggest that treated firms differentially specialize in exporting, rather than importing. This conclusion becomes much starker once we consider that being an exporter—and likely increases in firm scale—may decrease the cost of importing directly. In light of this, the small effect on importing suggests treated firms specialize toward exporting, away from importing.

Our findings suggest that procurement contracts increased exports not only by inducing firms to enter export markets or expand export volumes within existing product–destination combinations, but also by prompting them to diversify into new products and enter new destination markets.

Contracts shift exports toward light manufactures. Procurement contracts led firms' exports to shift away from primary-commodity exports like agriculture toward labor-intensive light manufactures—patterns consistent with industrial upgrading.

The new exports cluster in labor-intensive manufactures, while primary-commodity exports contract. Figure 6 reports estimates of event studies analogous to Panel (a) of Figure 4, substituting as the outcome a dummy indicating whether the firm is an exporter for at least one product *in the respective SITC Rev. 2 section*. Figure A.3 in the appendix overlays the corresponding TWFE and Callaway and Sant'Anna (2021) estimates. The figure displays parallel pre-trends for all SITC 1-digit sections. Upon receiving a first DoD procurement contract, there is *no increase* in firms' likelihood of being an exporter of any product in SITC sections 0 to 5: "food and live animals", "beverages and tobacco", "crude materials", "mineral fuels", "animal or vegetable oils, fats and waxes", and "chemicals". However, there is a statistically significant increase in the likelihood of being an exporter of any product in SITC sections 6, 7, and 8. Firms become 10 percentage points more likely to be exporting "manufactures by material" and "miscellaneous manufactures" three to seven years after receiving a first DoD procurement contract—an economically significant increase. The likelihood of exporting "machinery and transport equipment" is only around 3 percentage points higher after three to seven years.

Figure 7 zooms in further and reports estimates of the treatment effect for the 35 SITC 2-digit divisions with at least 100 firm-year observations. We observe positive and significant treatment effects in eight two-digit SITC divisions, concentrated largely in the manufacturing

of textiles and apparel.[30] Conversely, we observe negative point estimates in a range of sectors, largely concentrated in agriculture and raw materials.[31] Two of these estimates are statistically significant at the 5% level, both in raw primary products: 01, meat and preparations thereof, −2.3 percentage points; and 32, coal, coke and briquettes, −2.1 percentage points. (For clarity and consistency, we display the average treatment effect for periods three to seven; the full event-study estimates are shown in Appendix Figure A.2. Figure A.4 in the appendix compares the TWFE and Callaway and Sant'Anna (2021) event-study estimates for nine of these divisions, which are qualitatively similar.)

Taken together, we observe negative effects on exporting in unprocessed primary goods and raw materials, and positive effects on labor-intensive light manufactures. These patterns are consistent with procurement contracts helping firms to upgrade from raw-commodity exports toward light manufacturing—a crucial first step up the development ladder. How much of South Korea's export growth do these firm-level responses add up to? We take stock next.

5.3 Magnitudes and interpretation

Together, these results indicate that procurement contracts had strong, positive effects on exporting: firms that won their first procurement contract were 14.7 percentage points more likely to export and expanded their export volumes by 40%. These magnitudes are consistent with other estimates from the firm exports literature. For instance, Atkin et al. (2017) find that Egyptian rug manufacturers who took up initial export orders reported 42% higher profits, while Alfaro-Ureña et al. (2022) estimate that Costa Rican firms that join multinational supply chains see a 20% increase in sales to other buyers.

At the aggregate level, our results suggest that procurement contracts were a major driver of export growth in South Korea during this period. We can perform a simple back-of-the-envelope calculation. On the extensive margin, combining a 14.7-percentage-point treatment effect with 289 treated firms implies that war procurement increased the number of exporting South Korean firms by 42.5, corresponding to 10.0% of the exporters in 1973.[32] On the intensive margin, our estimated treatment effect of 0.340 implies that treated

[30] These SITC sectors and their increases are as follows: 84, apparel and clothing accessories, where the increase is 7.6 percentage points; 65, textile yarn and fabrics, 5.0 percentage points; 89, miscellaneous manufactured articles, nes, 4.4 percentage points; 69, manufactures of metal, nes, 2.6 percentage points; 85, footwear, 2.4 percentage points; 83, travel goods & handbags, 1.9 percentage points; 64, paper, paperboard and articles thereof, 1.7 percentage points; 61, leather and leather manufactures, 1.4 percentage points.

[31] Other products with negative point estimates include 27, crude fertilizers and minerals; 05, vegetables and fruit; and 04, cereals and preparations thereof.

[32] The total number of exporters is based on the KTD, the data source used to obtain the extensive-margin estimates.

firms' exports would have been 28.8% lower in the absence of the procurement contracts (excluding the extensive-margin effect).[33] In 1973, treated firms' total exports were $1.262 billion (Table 3), implying that procurement contracts increased the value of exports by $364 million, or 10.3% of total exports that year.[34]

The pattern across these results points in one direction. The export gains persist well beyond the procurement period; they extend to East and Southeast Asian markets with no direct U.S. military demand; they come with broader destination and product portfolios, upgraded from primary commodities toward light manufactures; and they are matched by little movement in importing. This joint pattern is consistent with procurement contracts building durable, portable export capability, rather than delivering a temporary demand boost that dissipated with the war. One plausible mechanism is that fulfilling a contract gave firms direct experience producing for and selling to a foreign buyer—meeting product specifications, delivery schedules, and other requirements of international transactions. This experience, together with the credibility gained as a U.S. government supplier, may have lowered the cost of reaching subsequent international buyers.[35]

The next section probes this interpretation: whether the gains came at the expense of other firms, which types of contracts built capability, and how treated firms fared in the subsequent turn toward heavy industry.

6 Exploring mechanisms

The export gains estimated in Section 5 suggest that treated firms did not just take business from other Korean firms, but gained new capabilities. Untreated exporters expanded alongside contract winners in the very sectors winners entered, and total exports of procured sectors grew—leaving little room for business stealing or crowding out. The effects are strongest where contracts required firms to produce goods rather than services. And the capability outlasted its cause: when the government's heavy-industry drive began in 1973, it was procurement-era exporters who carried it.

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[33] Here, we are extrapolating to all 289 treated firms from the 46 firms treated in 1969 or later for which we can estimate the intensive margin effects.

[34] In 1968, they would have been responsible for $44 million in exports—10.8% of sample exports that year.

[35] See Chung (2026) for a historical account of how supplying to the American military gave Korean firms experience dealing with international standards. Because we do not observe these capabilities directly, we treat this interpretation as suggestive.

6.1 Little evidence the gains came at other firms' expense

A natural concern is that the effects of procurement are purely redistributive—that firms that won contracts expanded at the expense of firms that did not, whether by taking their business directly or by crowding them out of export markets through negative spillovers. Three pieces of evidence leave little room for that reading.

Control exporters grew in the sectors winners entered. Figure 8 plots the number of never-treated (control) firms that export, separately for "spillover" sectors—those in which treated firms' export presence rose after procurement—and for other sectors. Panel (a) defines spillover sectors as one-digit SITC sections 6–8 (manufactured goods), where the treated-firm effects in Figure 6 are positive; Panel (b) instead uses the eight two-digit divisions with statistically significant positive treated-firm effects in Figure 7.

In both panels, the number of control exporters in spillover sectors rises during the procurement window and continues to rise afterward, rather than falling. By contrast, control exporters in other sectors grow much more slowly. These patterns are hard to square with business stealing. If anything, never-treated exporters expanded alongside treated firms in those same manufacturing sectors, consistent with positive within-sector spillovers or a broader sectoral expansion.

Whole sectors expanded, not just treated firms' share. If procurement had merely reallocated exports from control firms to treated firms, then a Korean sector's *total* exports, which sum over both treated and never-treated firms, should not respond to procurement. Sector totals rise strongly after a sector's first contract. We test this using UN Comtrade data at the four-digit SITC level, estimating a sector-level analogue of our firm-level event-study design:

$$y_{s,t} \;=\; \sum_{h \neq -1} \tau_h \, \mathbb{1}\{K_{s,t} = h\} \;+\; \theta_s \;+\; \kappa_t \;+\; \varepsilon_{s,t}, \tag{3}$$

where $y_{s,t}$ is the log of total Korean exports in four-digit SITC sector s and year t (UN Comtrade, with export values below \$100,000 set to \$100,000, an adjustment inspired by Chen and Roth (2023)); θ_s and κ_t are sector and year fixed effects; G_s is the first year in which sector s receives a U.S. procurement contract; and $K_{s,t} = t - G_s$ is event time, with $h = -1$ the omitted reference period. We estimate the dynamic effects τ_h with the Callaway and Sant'Anna (2021) estimator, using the 536 sectors with no mapped goods procurement

in the contract files as the never-treated control group.[36] We cluster standard errors by four-digit sector.

Figure 9 reports the sector-level event-study estimates using both the Callaway and Sant'Anna (2021) and TWFE estimators, which yield nearly identical results. Pre-treatment estimates are close to zero. Following procurement, exports in treated sectors increase steadily, reaching approximately 0.74 log points (roughly a 110% increase) four years after treatment. These findings are difficult to reconcile with a business-stealing explanation operating within sectors. Instead, they show that the sectors receiving U.S. military procurement saw a net expansion in export activity, rather than simply reallocating exports across firms.[37]

Most of the expansion was in markets control firms did not serve. A final, descriptive fact fits the same reading. Table A3 decomposes treated firms' post-treatment export value by whether the market was already served by any never-treated firm in the baseline year (1968, the first year export values are available). Only 28% of that value falls in product categories that any never-treated firm already exported in 1968, and only 23% in product–destination pairs. Thus, the majority of treated firms' subsequent expansion took place in markets to which control firms were not already exporting at the start of our sample.

6.2 Effects are stronger for goods than service contracts

We next ask whether the effects depend on what a contract required firms to do, splitting firms by whether their first-year procurement contract covered goods or services. Since our outcomes are goods exports, this is the natural dividing line: goods contracts involved producing the kind of output a firm would later export; service contracts—construction, transport, base services—did not.

Goods contracts have larger extensive-margin effects. Figure 10 shows positive effects for both groups, but substantially larger ones among firms whose first contract covered goods.

Panel (a) reports Callaway and Sant'Anna (2021) estimates for the probability of being an exporter: pre-trends are flat, treatment effects increase before stabilizing around event year three, and they are consistently larger for firms receiving goods contracts. Panels (b) and (c) follow Borusyak et al. (2023) to increase statistical power.

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[36] Appendix Table A1 summarizes, by one-digit SITC section, the numbers of four-digit sectors with and without mapped DoD goods procurement in the 1965–1974 contract window and each section's share of total mapped goods-procurement value.

[37] Note that these analyses still do not rule out the possibility that our findings are driven by reallocation *between* sectors.

Panel (b) shows that the Borusyak et al. (2023) estimates closely track those in Panel (a). Averaging over event years three to seven, goods contracts increase the probability of exporting by 22.8 percentage points, against 8.7 percentage points for service contracts; the difference is statistically significant at all conventional levels.

Product-scope gains are also larger for goods contracts. Panel (c) reports effects on product scope, the number of products exported, transformed using the IHS. Effects are positive and increasing for both contract types, but larger for goods contracts: averaging over event years three to seven, 0.343 against 0.072 for service contracts, a difference that is statistically significant at all conventional levels.

Both contract types brought procurement revenue and an American customer; they differed in what fulfilling them involved. One reading—which the data cannot directly confirm—is that producing goods to military specification built capabilities closer to those required for exporting goods. The difference may also partly reflect selection, if firms winning goods contracts had greater ex ante export potential. But if contracts did build production capability, that capability should outlast the procurement era itself—which is what we turn to next.

6.3 After procurement, treated firms move into heavy industry

The capability procurement built outlasted procurement itself. At the tail end of the Vietnam War, in 1973, the South Korean government launched the Heavy and Chemical Industry (HCI) drive, which directed state support toward heavy industries and away from agriculture and light manufacturing (Lane, 2025). Were the procurement boom and this later industrial policy complements or substitutes? The evidence points to complements: when the drive began, it was procurement-treated firms that carried the expansion into heavy industry.

Figure 11 presents the average exports of firms across two broad categories of manufacturing sectors—textiles (including apparel and their inputs) and heavy and chemical industries (HCI). Textiles were Korea's leading light manufacturing industry of the procurement period and encompass most of the sectors where we observe procurement increasing exports, as described in Section 5.2. The figure covers two policy regimes: the Vietnam War procurement boom (winding down by 1973) and the subsequent HCI drive (beginning in 1973). Panel (a) shows the extensive margin, and Panel (b) the intensive margin.

For the procurement period, three patterns stand out in Figure 11. First, the surge in manufacturing exports during the war procurement period was driven almost entirely by treated firms. Second, these firms' exports were dominated by textiles, not heavy and chemical industries. Third, from 1973 onward, control firms' manufacturing exports rose modestly,

in particular their heavy-and-chemical-industry exports; however, this increase was small compared with the growth in HCI exports among procurement-treated manufacturers.

The increase in HCI exports from 1973 coincides with the Korean government's new industrial strategy, which explicitly prioritized heavy and chemical industries. Although exports of heavy and chemical industries rose for both procurement-treated and untreated firms, the increase was most pronounced among firms previously treated under the procurement program.

Taken together, these results suggest that U.S. war procurement and the subsequent HCI drive were complementary rather than substitutive. The HCI drive relied disproportionately on firms that had entered export markets during the earlier procurement boom. We find little evidence that this industrial policy crowded out textiles: textile exports continued to grow throughout, in particular on the intensive margin.

Across this section, the evidence points one way. The export gains were not taken from other Korean firms: control exporters grew in the very sectors winners entered, and procured sectors expanded in total. The gains were largest where contracts required firms to produce goods. And they persisted into the next policy era, with procurement-era exporters carrying the HCI drive. This pattern is consistent with procurement building durable export capability rather than transferring demand from one set of Korean firms to another.

7 Conclusion

By building a unique firm-level dataset of Korean exports and U.S. military contracts, this paper brings novel causal evidence demonstrating the importance of U.S. policies, motivated by geopolitics, to the South Korean economic miracle.

We show that winning a U.S. military procurement contract significantly increased Korean firms' probability of exporting (on the extensive margin) and their volume of exports (on the intensive margin). These gains were not confined to expanding sales within existing product–destination combinations: treated firms also entered new destination markets—including higher-income Western countries beyond the United States—and broadened their export product scope, with upgrading concentrated in manufacturing (SITC sections 6–8) rather than primary products. Nor do the firm-level effects appear to reflect business stealing. Sector-level exports rise after procurement, and never-treated firms expand rather than shrink in the manufacturing sectors where treated firms gained ground. The gains were also largest where contracts required firms to produce goods rather than services.

The overall effects of American military procurement are economically significant: our estimates imply that procurement contracts were responsible for the entry of 10.0% of exporters by 1973, and for 10.3% of sample exports in that year. By providing firms a large

source of demand as well as experience interacting with foreign buyers, the procurement boom helped foster the growth of Korea's later export champions—among them, *chaebols* such as Hyundai. Moreover, when the government's Heavy and Chemical Industry (HCI) drive began in 1973, it was procurement-treated firms that carried the expansion into heavy industry, suggesting that external demand shocks and subsequent domestic industrial policy complemented each other.

More broadly, our findings underscore the role of U.S. economic policy in shaping South Korea's export miracle. They provide suggestive evidence that similar procurement booms—during the Korean War in Japan, and during the Vietnam War in Taiwan, Hong Kong, and Singapore—may have been similarly transformational. In an era of aid cuts, rising protectionism, and increased geopolitical tension, the distinction between forms of foreign support matters: unlike many aid programs, war procurement succeeded in fostering large and persistent growth in manufacturing exports. Previous evidence has shown that micro interventions can improve firm outcomes, albeit in modern contexts with moderate or limited export growth. Drawing on evidence from Korea's major export miracle, this paper suggests that firm-level policies to improve market access and give firms export experience can work at scale to support industrial transformation.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work, the authors used Claude Code and ChatGPT Codex for coding and initial drafting purposes. The authors reviewed and edited the output as needed and take full responsibility for the content of the published article.

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Tables

Table 1. Data sources, coverage, and outcomes

Source	Measures	Years	Cohorts for which Treatment Effect is Estimated
Outcome data			
KTD	Firm is exporter	1959–1976	1965–1974
	Number of products exported	1959–1976	1965–1974
Export Directory	Export value (nominal U.S. dollars)	1968–1977	1969–1974
	Value by destination	1968–1977[a]	1969–1974
	Number of destinations	1968–1977[a]	1969–1974
Treatment			
DD-350 contract files	Contracts and product/service	1965–1974[b]	
Auxiliary			
Korean Business Directory	Firm in operation	1966–1969[c]	
UN Comtrade	SITC4 export values	1962–1984	

Notes: "Cohorts" reports the first-contract cohorts each source can follow with at least one pre-treatment year of data. [a] The 1974 edition reports firm totals only, with no destination or product breakdown, so destination-level outcomes exclude 1974. [b] Calendar years, corresponding to fiscal years 1966–1975. [c] Three editions: 1966–67, 1967–68, and 1968–69.

Table 2. Summary statistics of Korean export data

Panel A: Comprehensive Export Directory

Year	Firms with positive exports	Mean (positive exports)	Median (positive exports)	N
1968	505	812,550	284,784	3803
1969	572	1,351,339	498,038	3803
1970	550	1,864,218	698,074	3803
1971	563	2,287,788	732,073	3803
1972	660	2,563,160	870,783	3803
1973	888	3,965,168	1,258,500	3803
1974	838	3,997,982	1,191,000	3803
1975	1202	3,547,285	996,000	3803
1976	1088	3,755,774	1,184,500	3803
1977	1131	5,807,907	2,015,000	3803

Panel B: Korea Trade Directory

	Firm in KTD	Exporters	Products exported per exporter	N
1959	427	333	4.08	3803
1960	558	348	11.00	3803
1961	602	371	11.66	3803
1962	710	378	10.36	3803
1963	705	287	5.79	3803
1964	522	259	7.42	3803
1965	599	339	8.80	3803
1966	722	275	7.92	3803
1967	734	296	6.80	3803
1968	562	233	3.65	3803
1969	607	358	2.95	3803
1970	673	375	3.14	3803
1971	592	306	3.25	3803
1972	668	414	2.65	3803
1973	698	425	4.56	3803
1974	1059	562	4.26	3803
1975	1218	624	4.39	3803
1976	1310	643	4.42	3803

Notes: This table reports annual summary statistics from the Comprehensive Export Directory (Panel A) and the Korea Trade Directory (Panel B). The underlying unit of observation is the firm-year, and N is the number of firms in the balanced panel in each year. In Panel A, the mean and median are computed among firms with positive exports and are reported in nominal U.S. dollars. Panel B contains firm-count and export-product-count measures, not dollar values.

Table 3. Procurement contracts relative to firm exports

Year	Procurement contracts			Procurement relative to exports				
	Recipient firms	Mean procurement per firm	Median procurement per firm	Procurement (millions)	All-firm exports (millions)	Procurement/ all exports (%)	Treated-firm exports (millions)	Procurement/ treated exports (%)
1965	133	21,368	6,000	—	—	—	—	—
1966	133	24,639	9,000	—	—	—	—	—
1967	148	239,007	92,500	—	—	—	—	—
1968	177	543,164	98,000	56.2	410	13.7	154	36.6
1969	143	328,664	79,000	53.6	773	6.9	313	17.1
1970	125	492,784	119,000	63.2	1,025	6.2	392	16.1
1971	103	531,942	118,000	46.1	1,288	3.6	565	8.2
1972	95	445,221	233,000	32.1	1,692	1.9	667	4.8
1973	91	366,484	105,000	25.6	3,521	0.7	1,262	2.0
1974	83	584,602	108,000	—	—	—	—	—

Notes: This table reports matched U.S. procurement contracts alongside firm export revenues, by year. The first block summarizes procurement among firms in the linked panel: "Recipient firms" is the number receiving procurement that year, while the mean and median are computed from each recipient's total procurement for the firm-year, not from individual contracts. The second block uses contractors observed in the export-value sample, available from 1968. "Exporting recipients" is the number of such firms, over which procurement is summed. "All-firm exports" sums exports across the full export-value sample, while "Treated-firm exports" sums exports of firms that ever receive a contract. Procurement and export totals are in millions of nominal U.S. dollars; mean and median procurement are in dollars. Dashes mark years without comparable firm export values.

Table 4. Effect of first U.S. procurement contract on exports: Event-study ATT estimates

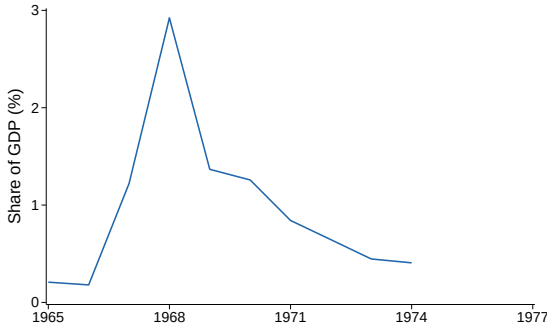
Panel	Outcome	Horizon: years after 1st contract	ATT	(SE)	Treatment cohorts included	N treated firms	N never-treated firms
Panel A: Extensive margin (Korea Trade Directory)							
(a)	Is an exporter	3-to-7	0.147	(0.026)	All	289	3,514
(b)	Number of products exported (IHS)	3-to-7	0.184	(0.057)	All	289	3,514
Panel B: Intensive margin (Comprehensive Export Directory)							
(a)	Log(Exports to any destination)	0-to-4	0.340	(0.199)	From 1969	46	3,514
(b)	Log(Exp. to E & SE Asia, excl. Viet.)	0-to-4	0.391	(0.127)	From 1969	46	3,514

Notes: This table reports effects of a firm's first U.S. procurement contract on the listed outcomes. The unit of observation is the firm-year. Panel A uses all treatment cohorts; Panel B restricts treated firms to those first treated after 1968. Never-treated firms form the comparison group in both panels. N denotes the number of firms in each treatment-status group. ATT denotes the average treatment effect on the treated. Horizon denotes the post-contract event-year range and is defined in Section 4; event year 0 is the first-contract year, and event year −1 is the omitted reference period. The binary-outcome ATT is in percentage points; log- and IHS-outcome ATTs are on their transformed scales. In the outcome labels, Exp. denotes exports, E & SE Asia denotes East and Southeast Asia, excl. denotes excluding, and Viet. denotes Vietnam. Estimates come from two-way fixed-effects event-study regressions with firm and year fixed effects. SE denotes standard error; standard errors, clustered by firm, are in parentheses. Export values are nominal U.S. dollars. Log export outcomes use a $100,000 floor before taking logs: values at or below $100,000, including zeros, enter as log(100,000). IHS denotes inverse hyperbolic sine.

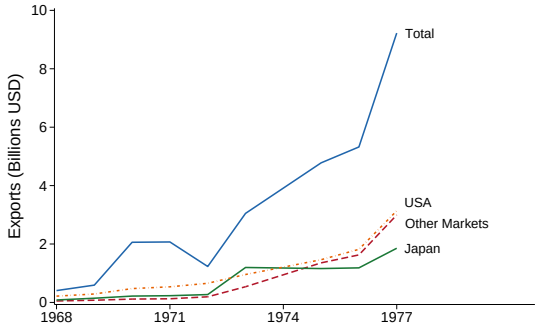
Figures

Figure 1. The U.S. procurement shock and Korea's export miracle

(**a**) Total procurement contracts (% of GDP)



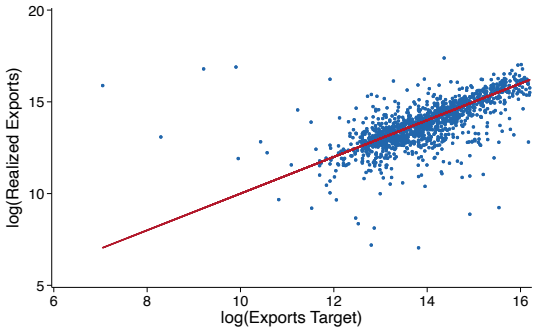
(**b**) Increases in aggregate exports



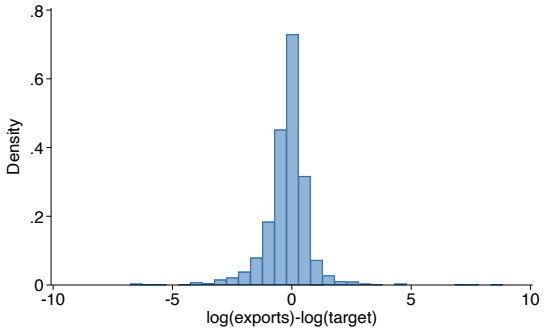
Notes: This figure documents the overall macroeconomic background of the U.S. war procurement shock in South Korea. Panel (a) shows the value of U.S. procurement contracts as a share of South Korean GDP. Panel (b) shows the value of exports by the firms in our data set, summed across destination groups (Total), and separately to the United States, to Japan, and to a fixed set of other destination countries. The three destination series do not sum to the total, which also includes exports to Vietnam, to remaining smaller markets, and to destinations recorded without a country. Panel (a) covers U.S. procurement contracts awarded to Korean firms, 1965–1974; Panel (b) covers the export records of the firms in our data, 1968–1977. See Section 3 for firm-level export data and sample scope.

Figure 2. The accuracy of year-ahead export targets

(**a**) Export targets vs. realized exports



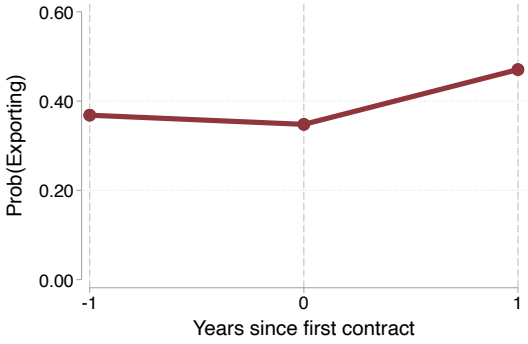
(**b**) The distribution of log target error



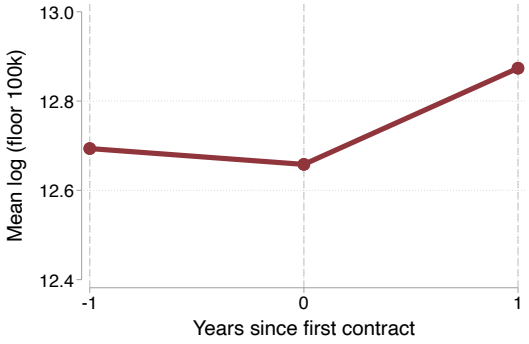
Notes: This figure shows that Korean government export targets—set one year ahead—provide a reasonably unbiased prediction of subsequently realized exports, which fall short of targets in slightly more than half of all cases. Panel (a) scatters the log of realized exports (in year $t+1$) against the log of export targets (set in year t for the year ahead). The red line plots $y = x$, the benchmark of perfect forecast accuracy. Panel (b) plots the log target errors, defined as the log of realized exports minus the log of export targets—i.e., the vertical distance from the line in the previous graph. The mean log target error is -0.181, and the standard deviation is 0.989. Export targets are available for 1970, 1971, and 1972.

Figure 3. Export targets and contract timing: Before, during, and after first contract

(**a**) Mean export targets for treated firms, extensive margin

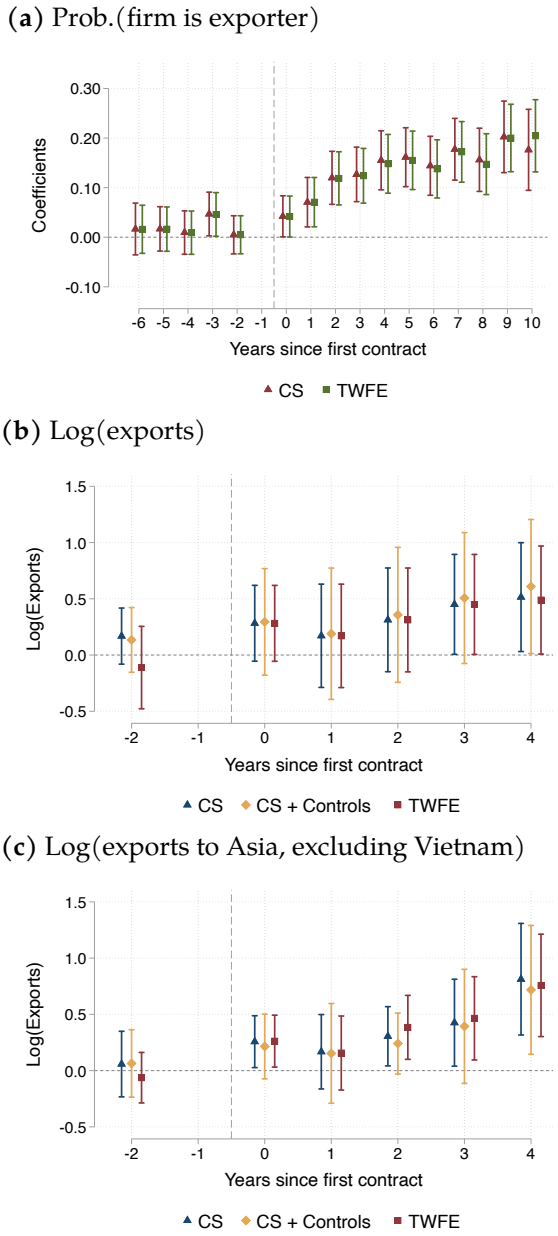


(**b**) Mean export targets for treated firms, intensive margin



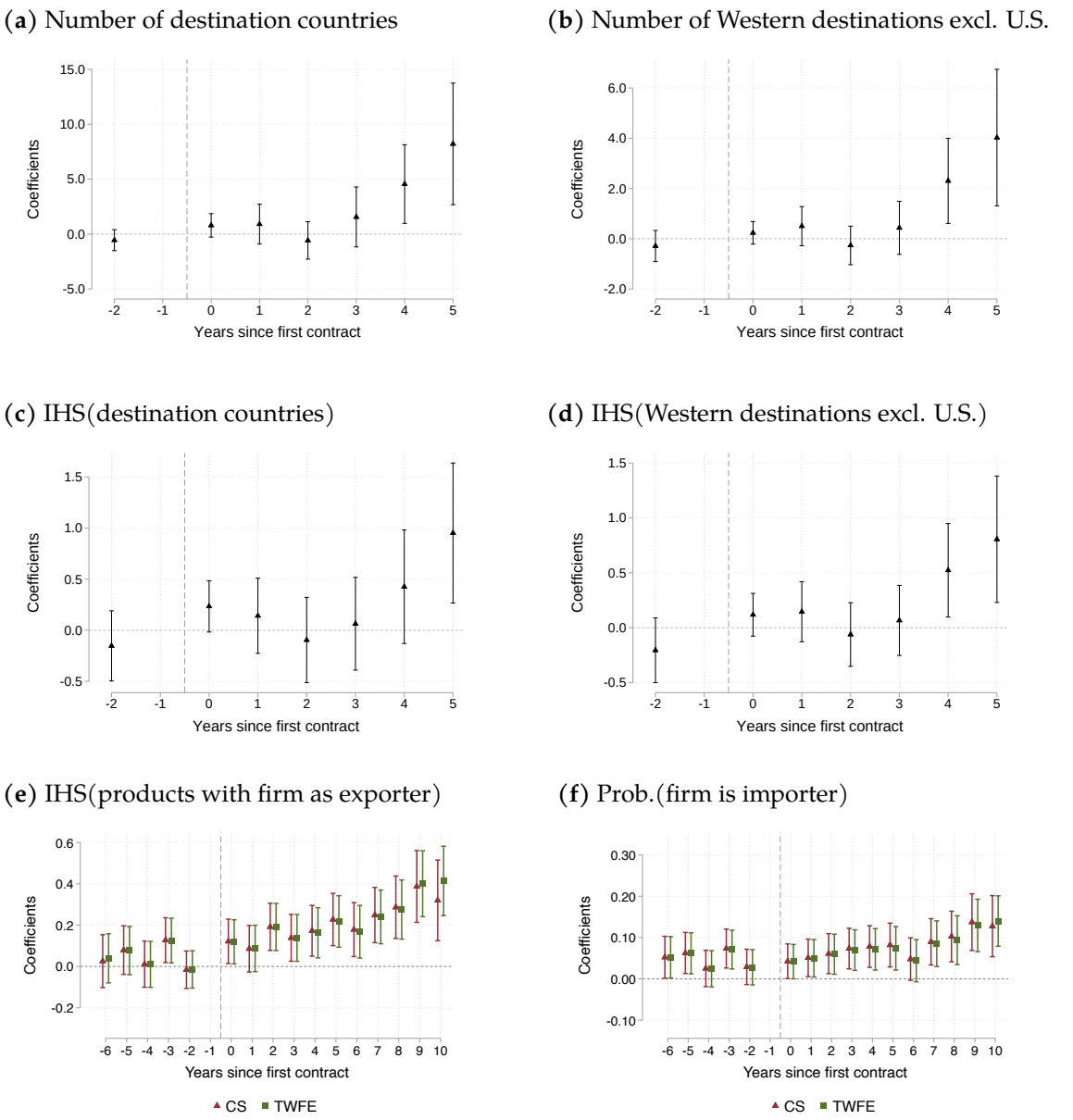
Notes: This figure shows how Korean government export targets—set one year ahead—evolve for firms around the time of winning a procurement contract, for observations 1970–1972. The graph shows stable targets between years -1 and 0, followed by an increase in year 1, indicating contracts were not awarded to firms with expected increases in exports. Panel (a) isolates the extensive margin. Panel (b) focuses on the intensive margin, netting out the extensive margin without excluding observations with zero exports, following Chen and Roth (2023). We address the problem of logs of zero by treating exports below $100,000 as equal to $100,000; see Section 3. Each panel shows no increases in targets in event year 0 for firms treated in the sample period. Export targets are similar between the pre-contract event year ($h = -1$) and the event year ($h = 0$), and increase only after the contract award.

Figure 4. Firm-level effect of winning first contract: Extensive and intensive margins



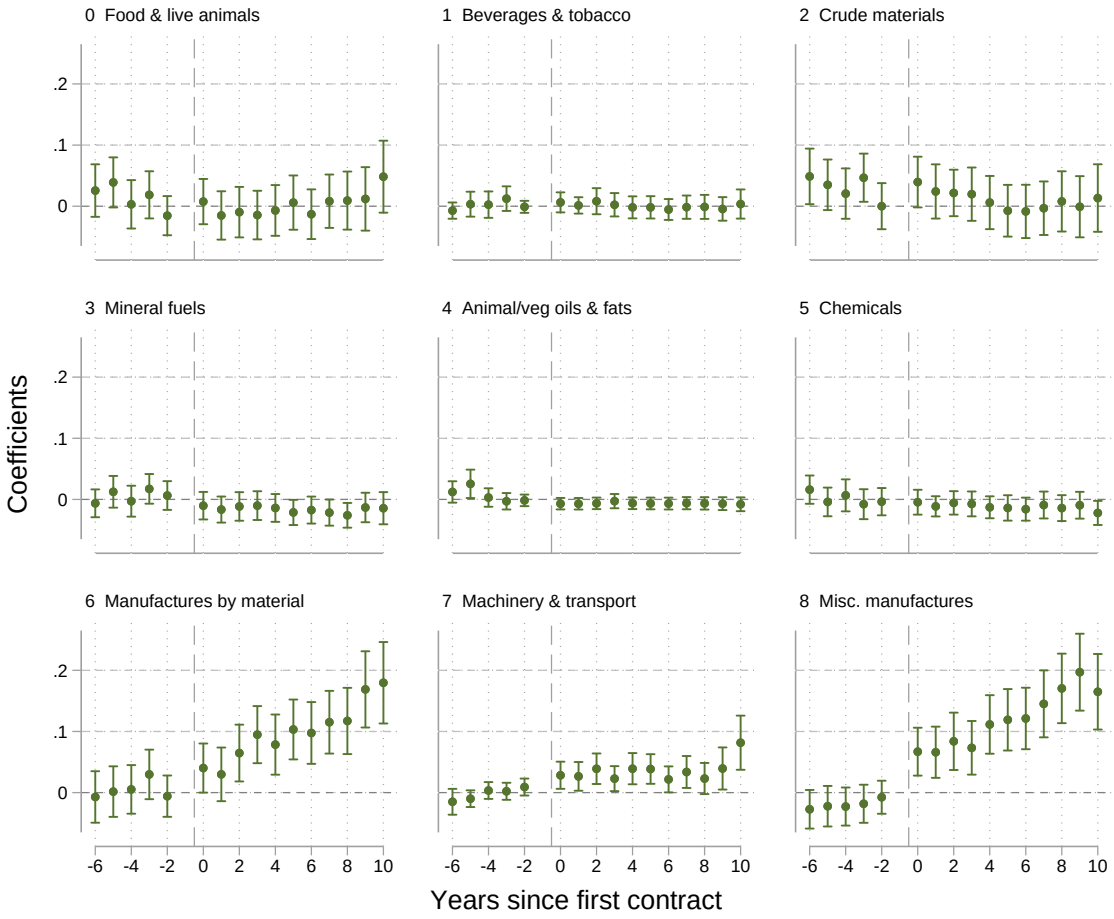
Notes: This figure shows that firm exports increase after a firm receives its first procurement contract, with no differential pre-trends. It plots effects on the probability of exporting (extensive margin) and the volume of exports (intensive margin) using two-way fixed effects (TWFE; firm and year) and the Callaway and Sant'Anna (2021) staggered difference-in-differences estimator (CS). The unit of observation is the firm-year, and each panel's estimation sample is balanced across its specified years. Panel (a)'s outcome variable is constructed from the *Korea Trade Directory* (KTD), with a sample spanning 1959 to 1976 that includes all 3,514 control firms and 289 treated firms across all treatment cohorts. Panels (b) and (c)'s outcome variable is constructed from the *Comprehensive Export Directory* and spans 1968 to 1977. Their estimation sample includes firms treated in 1969 or later (46 firms) plus all 3,514 control firms. Panels (b) and (c) additionally report *CS + Controls* estimates, obtained by conditioning on a firm's history of appearing in the KTD before the start of the export data. Following Chen and Roth (2023), exports below \$100,000 are set to \$100,000 before taking logs, which yields an intensive-margin interpretation while avoiding the exclusion of 0-export observations. Event time h measures years relative to the firm's first U.S. Department of Defense procurement contract; $h = -1$ is the omitted reference period. The vertical bars mark 95% confidence intervals clustered at the firm level.

Figure 5. Firm-level effect of winning first contract: Country scope, product scope, and importing



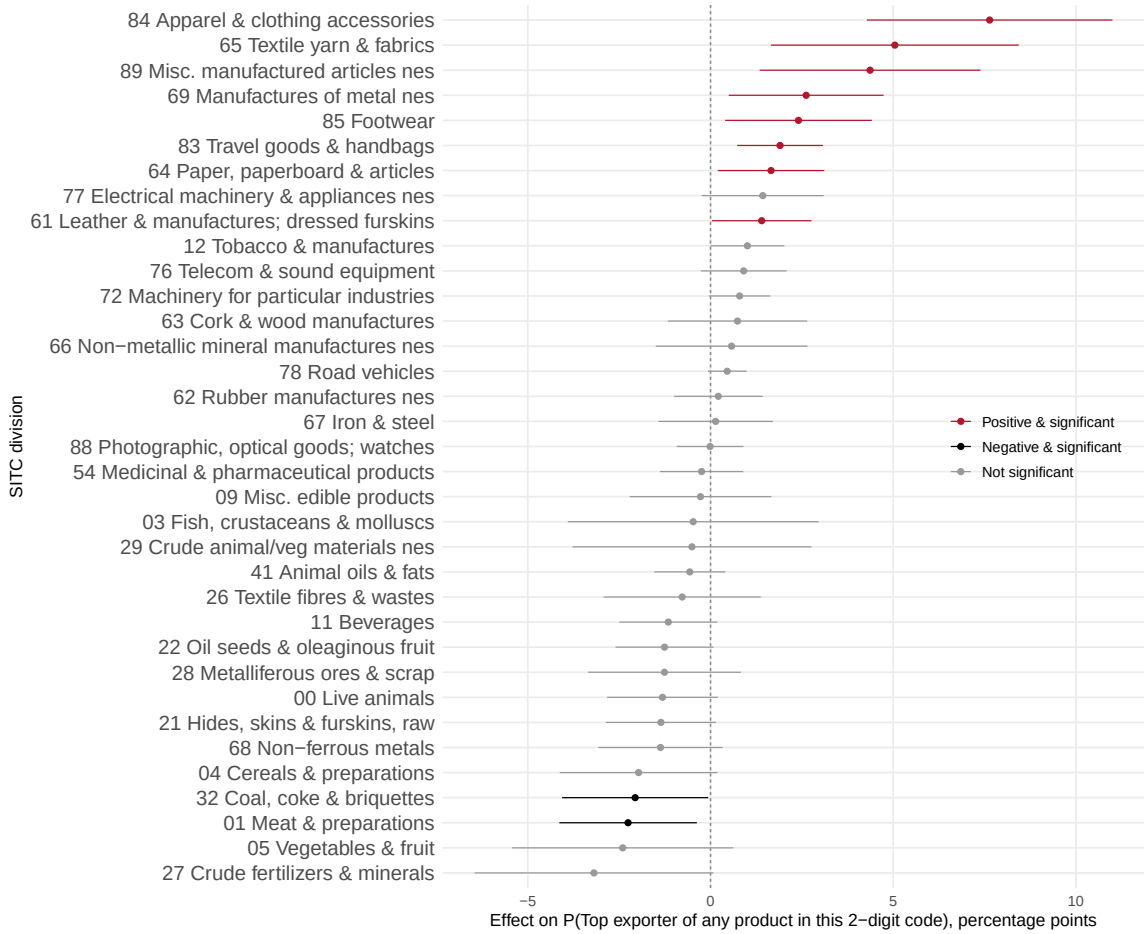
Notes: This figure shows that the geographic and product scope of a firm's exports increases after it receives its first procurement contract, with no differential pre-trends and limited effects on the likelihood of being an importer. Panels (a)–(d) report destination-country scope; Panels (a) and (c) cover all destinations, while Panels (b) and (d) cover Western destinations excluding the United States. Panels (a) and (b) are in levels; Panels (c)–(e) apply the inverse hyperbolic sine (IHS), and Panel (f) plots effects on a dummy variable. Panels (a)–(d) are estimated with the Callaway and Sant'Anna (2021) staggered difference-in-differences estimator (CS); Panels (e)–(f) with two-way fixed effects (TWFE; firm and year) and CS. The unit of observation is the firm-year, and each panel's estimation sample is balanced across its specified years. Destination counts are zero-filled, so non-exporting firm-years enter as zeros rather than as missing. Outcomes in Panels (a)–(d) are constructed from the *Comprehensive Export Directory*, covering 1968 to 1977 and excluding 1974—a year for which the source reports total exports but no destination breakdown; outcomes in Panels (e)–(f) are constructed from the *Korea Trade Directory*, spanning 1959 to 1976. Event time h measures years relative to the firm's first U.S. Department of Defense procurement contract; $h = -1$ is the omitted reference period. The vertical bars mark 95% confidence intervals clustered at the firm level.

Figure 6. Treatment shifts firms' exports to manufacturing—SITC 1-digit



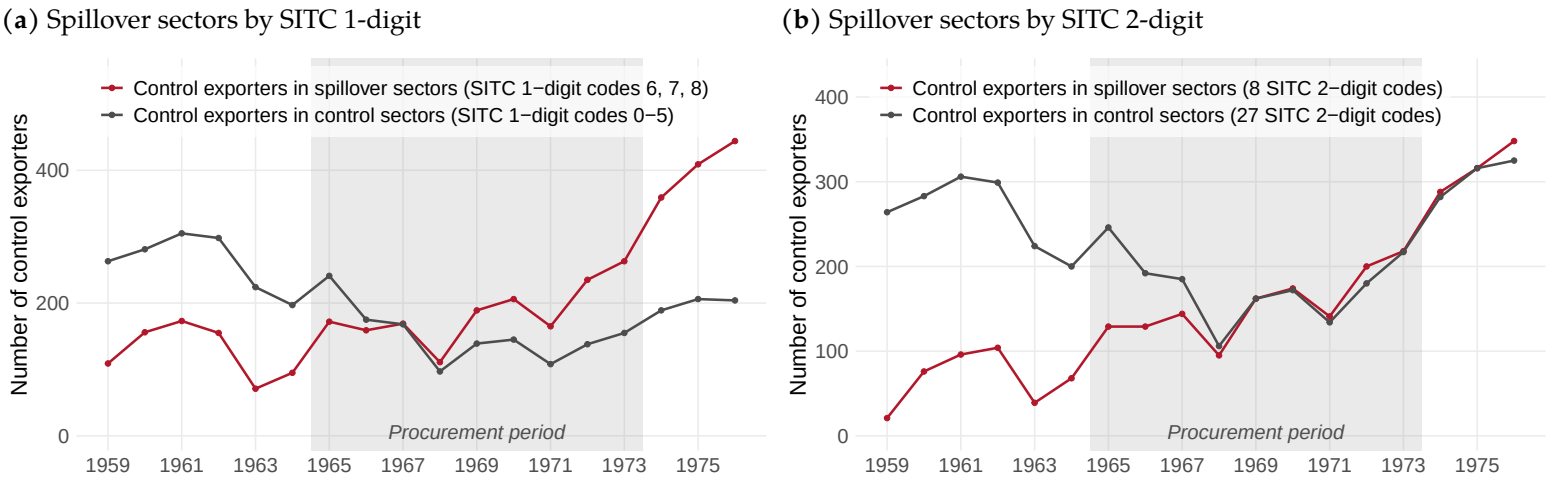
Notes: This figure shows that the probability of exporting manufactured goods and machinery increases after a firm receives its first procurement contract, with no differential pre-trends and no effect on other types of exports, including food and raw materials. The nine panels each report one event-study series for one-digit Standard International Trade Classification (SITC, Revision 2) sections 0–8, each estimated separately using two-way fixed effects (TWFE; firm and year); each title gives the section code and an abbreviated description, and all panels use the same horizontal and vertical scales. Never-treated and not-yet-treated firms both serve as comparison observations. The unit of observation is the firm-year, and the estimation sample is balanced, spanning 1959 to 1976, all 3,514 control firms and 289 treated firms across all treatment cohorts. The outcome is an indicator equal to one when a firm is listed as an exporter of at least one product in the given section, constructed from *Korea Trade Directory* export-product listings mapped to SITC Rev. 2. Event time h measures years relative to the firm's first U.S. Department of Defense procurement contract; $h = -1$ is the omitted reference period. Green circles are point estimates; the dashed vertical line separates pre-contract and post-contract event times, the horizontal reference line marks zero, and light gridlines align with axis ticks. In the panel titles, "veg" means "vegetable" and "Misc." means "miscellaneous." The vertical bars mark 95% confidence intervals clustered at the firm level.

Figure 7. Treatment shifts firms' exports to manufacturing—SITC 2-digit



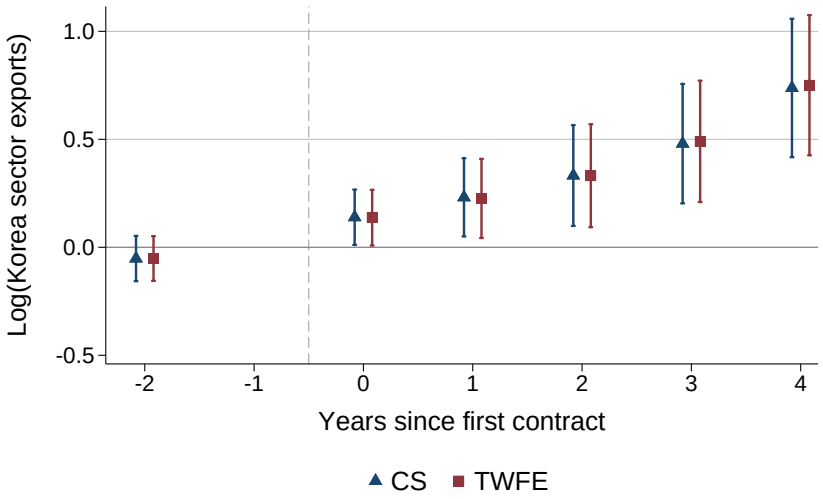
Notes: This figure shows that winning a contract raises a firm's probability of exporting a product in eight manufacturing divisions—by 1.4 to 7.6 percentage points—with no significant positive effect in the remaining divisions. Each row is one two-digit Standard International Trade Classification (SITC, Revision 2) division, estimated in its own two-way fixed-effects (TWFE; firm and year) event study, pooling post-contract years $h = 3$–7; the circle is that division's estimated effect, in percentage points, on the probability that a firm is listed as an exporter of at least one product in it. The unit of observation is the firm-year, and the estimation sample is balanced across its specified years: it spans 1959 to 1976 and includes all 3,514 control firms and 289 treated firms across all treatment cohorts. The outcome is constructed from *Korea Trade Directory* export-product listings mapped to SITC Rev. 2; the 35 divisions plotted each have at least 100 firm-year listings over the sample, counted across treated and never-treated firms. Divisions are ordered from the largest point estimate at the top to the smallest at the bottom. Red and black denote positive and negative estimates, respectively, significant at $p < 0.05$; gray denotes estimates that are not significant. "nes" means "not elsewhere specified." Horizontal whiskers are 95% confidence intervals clustered at the firm level.

Figure 8. Control firm exports increase in spillover sectors



Notes: This figure shows that exporting among never-treated firms rises (weakly) faster in spillover sectors than in control sectors during the procurement period. This figure plots 1959–1976 annual counts of exporters among the 3,514 never-treated Korean firms—firms that never received a U.S. Department of Defense procurement contract. Standard International Trade Classification (SITC) categories are divided into spillover (red) and control sectors (black). Each count is the number of control firms that the *Korea Trade Directory* lists as an exporter of at least one product in the indicated sector group. In Panel (a), SITC sections 6–8 are in the spillover group since they have positive post-contract treated-firm effects in the event study; SITC sections 0–5 form the control group. Panel (b) considers the 35 two-digit SITC divisions with at least 100 firm-year listings over all sample years, following Figure 7. The spillover group consists of divisions where the TWFE estimate of the contract's effect on its listing probability, pooled over $h = 3$–7, is positive and statistically significant at $p < 0.05$; the remaining divisions form the control group.

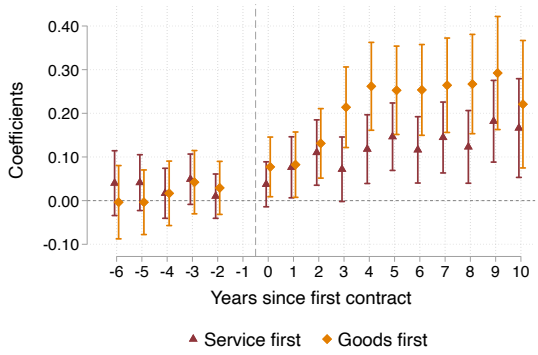
Figure 9. Total exports rise in sectors that received procurement



Notes: This figure shows that Korean sector-level exports rise after a sector first receives U.S. Department of Defense procurement. It reports sector-level event-study estimates around the first year in which a four-digit Standard International Trade Classification (SITC, Revision 1) sector receives such procurement, estimated using two-way fixed effects (TWFE; sector and year) and the Callaway and Sant'Anna (2021) staggered difference-in-differences estimator (CS). The unit of observation is the Korean sector-year, and the estimation sample is balanced across its specified years: it spans 1962 to 1987 and includes 85 sectors first treated between 1965 and 1974 and 536 never-treated sectors. The vertical axis reports effects on the log of Korea's total exports to the world in that sector, measured in U.S. dollars; following Chen and Roth (2023), values at or below $100,000 are set to $100,000 before taking logs. Export data are from UN Comtrade. Event time h measures years relative to the sector's first procurement; $h = -1$ is the omitted reference period, and the figure displays $h = -2, 0, \ldots, 4$. CS uses a universal base period, so the displayed pre-treatment estimate is a placebo long difference from $h = -1$; in the TWFE specification, event times $h \leq -3$ and $h \geq 5$ enter as endpoint bins. Navy triangles are CS estimates and maroon squares are TWFE estimates, offset horizontally for legibility. The vertical bars mark pointwise 95% confidence intervals clustered at the sector level.

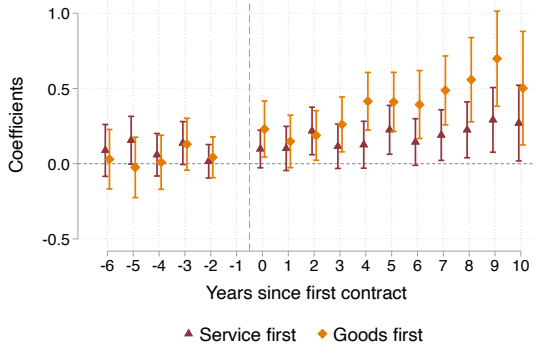
Figure 10. Goods exports increase more with goods contracts than with service contracts

(**a**) Prob.(firm is exporter), CS



(**b**) Prob.(firm is exporter), BJS

(**c**) IHS(products with firm as exporter), CS

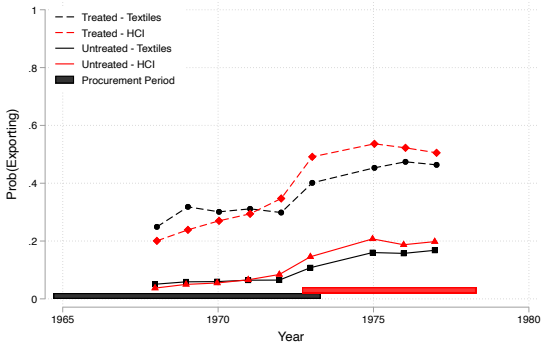


(**d**) IHS(products with firm as exporter), BJS

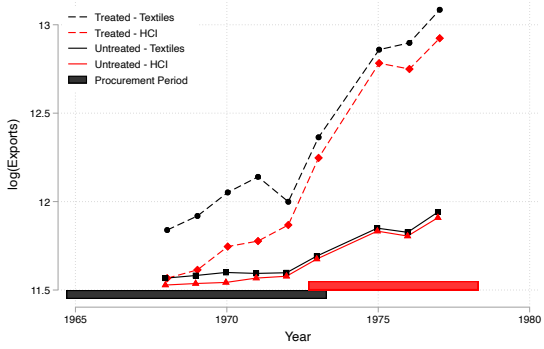
Notes: This figure shows that goods procurement contracts have much stronger effects than service procurement contracts, with parallel pre-trends in both cases. Panels (a) and (c) report effects estimated using the Callaway and Sant'Anna (2021) staggered difference-in-differences estimator (CS); Panels (b) and (d) report effects estimated using the Borusyak et al. (2023) imputation estimator (BJS), which we prefer for this heterogeneity analysis because of its greater statistical power, while the CS panels let us plot group-specific pre-trends. Panels (b) and (d) also report the p-value for the null that the average effect on the panel's export outcome over event years $h = 3$ to $h = 7$ is equal across the two groups: $p = 0.005$ for the extensive margin and $p = 0.008$ for product scope. The unit of observation is the firm-year, and each panel's estimation sample is balanced across its specified years. The outcome variables are constructed from the *Korea Trade Directory*, with a sample spanning 1959 to 1976 that includes all 3,514 control firms and 260 treated firms across all treatment cohorts. Treated firms are split by the composition of their first contract year: those whose contracts include services but no goods (164 firms), and those whose contracts are goods only (96 firms). Event time h measures years relative to the firm's first U.S. Department of Defense procurement contract; $h = -1$ is the omitted reference period in the CS panels. The vertical bars mark 95% confidence intervals clustered at the firm level.

Figure 11. Treated firms export textiles and react strongly to the Heavy and Chemical Industry drive

(**a**) Extensive margin



(**b**) Intensive margin



Notes: Each point is an annual mean across firms with a matched U.S. Department of Defense procurement contract (treated) or no matched contract (untreated), separately for textile exports and heavy and chemical industry (HCI) exports. Both panels plot annual means from the *Comprehensive Export Directory*, covering 1968–1977 and all 289 treated and 3,514 untreated firms. Panel (a) reports the share of firms with positive exports in the indicated sector. Panel (b) reports the mean log of nominal U.S.-dollar exports in the indicated sector after assigning values at or below $100,000, including zero, to $100,000; it is not conditional on positive exports. Product-specific export values are unavailable for 1974. Markers denote observed annual means, so the lines joining 1973 and 1975 do not represent a 1974 observation. Black and red series denote textiles and HCI, respectively; dashed and solid lines denote treated and untreated firms. The black and red bars along the horizontal axis mark the Vietnam War procurement period and the HCI drive, respectively.

A Appendix: Tables and figures

Tables

Table A1. Procurement by SITC sector classification

SITC	Section	Treated sectors	Control sectors	Procurement (m USD)	Share (%)
0	Food & live animals	5	84	43.5	15.3
1	Beverages & tobacco	3	6	1.3	0.4
2	Crude materials, inedible	3	104	1.0	0.3
3	Mineral fuels & lubricants	2	13	126.6	44.7
4	Animal & vegetable oils, fats	0	17	0.0	0.0
5	Chemicals & related products	4	59	4.1	1.4
6	Manufactures by material	24	157	39.8	14.0
7	Machinery & transport equip.	24	54	12.8	4.5
8	Misc. manufactured articles	19	38	53.1	18.7
9	Other/unclassified	1	4	1.3	0.5
Total		85	536	283.4	100.0

Notes: Rows are one-digit sections of the Standard International Trade Classification (SITC). The table summarizes the balanced 1962–1984 UN Comtrade panel used in the sector-level event study. The "Treated sectors" and "Control sectors" columns count four-digit SITC codes that do and do not receive mapped U.S. Department of Defense goods procurement, respectively. The contract files cover fiscal years 1966–1975, indexed by their starting calendar years 1965–1974. "Procurement" is cumulative mapped goods-contract value over those years, in millions of nominal U.S. dollars; "Share" is each section's percentage of that total. Procurement and share entries are rounded independently, so displayed rows need not sum to the reported totals. Treated sectors are concentrated in manufacturing (sections 6–8), while procurement value is concentrated in mineral fuels, miscellaneous manufactures, and food. These classifications are used in the sector-level event study in Figure 9. Source: Authors' calculations from UN Comtrade and the U.S. Department of Defense Military Prime Contract Files.

Table A2. Procurement vs. exports, UN Comtrade national series (1965–1973)

Year	Sectors	Procurement (m)	Exports (m)	Proc./Exp. (%)
1965	32	3.9	175	2.2
1966	26	3.3	250	1.3
1967	41	27.6	320	8.6
1968	38	49.2	455	10.8
1969	39	46.9	623	7.5
1970	30	48.0	835	5.7
1971	38	27.1	1068	2.5
1972	31	24.2	1624	1.5
1973	28	21.0	3225	0.7
Total		251.2	8575	2.9

Notes: Rows are labeled 1965–1973. Procurement fiscal years are indexed by their starting calendar year (for example, fiscal year 1966 is labeled 1965), while exports are calendar-year totals for the displayed year. "Sectors" is the number of Korean four-digit Standard International Trade Classification (SITC, Revision 1) sectors with positive mapped procurement in that row. "Procurement" sums U.S. Department of Defense goods-contract values that can be mapped from Federal Supply Classification codes to those sectors; services and unmapped contracts are excluded. "Exports" sums Korea's nominal exports to the world from UN Comtrade. Procurement and exports are in millions of U.S. dollars. "Proc./Exp." is procurement divided by exports, in percent. The Total row sums procurement and exports over the nine rows and reports the ratio of those sums; its blank Sectors entry indicates that annual sector counts are not aggregated. This sector-mapped procurement series is distinct from the firm-linked contract series. Source: Authors' calculations from the U.S. Department of Defense Military Prime Contract Files and UN Comtrade.

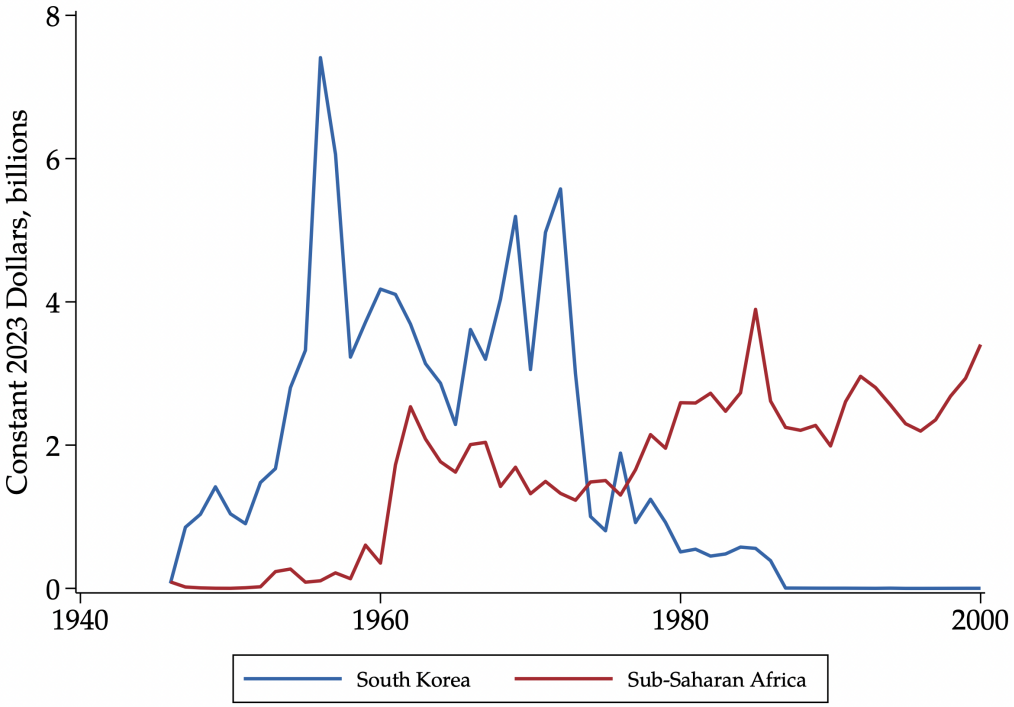
Table A3. Treated firms' post-treatment export value by never-treated-firm market presence in the baseline year (1968)

	Export value ($m)	Share of value (%)	Distinct markets	Firm–cell–year obs.
Panel A: Product markets				
Served by a never-treated firm in 1968	26.1	28.1	71	600
Not served by any never-treated firm in 1968	66.7	71.9	1,211	6,380
Panel B: Product × destination markets				
Served by a never-treated firm in 1968	21.4	23.1	127	273
Not served by any never-treated firm in 1968	71.3	76.9	4,243	6,707
Total	92.8	100.0		6,980

Notes: This table decomposes treated firms' post-treatment export value by whether the market was already served by any never-treated (control) firm in the baseline year (1968). The sample is the disaggregated firm–product–destination export panel; treated firms are those receiving a first U.S. procurement contract after 1968, and post-treatment covers each firm's first-contract year through 1977 (1974 is unavailable). A product (Panel A) or product–destination pair (Panel B) is classified as served in 1968 if at least one never-treated firm recorded positive exports in that cell in that year—the first year of the disaggregated export data. "Distinct markets" counts the products (pairs) in treated firms' post-treatment exports in each row; "Firm–cell–year obs." counts firm–product–destination–year observations with positive exports. Dollar values are in millions of current U.S. dollars. Only 28% of treated firms' post-treatment export value falls in products—and only 23% in product–destination pairs—that any never-treated firm already exported in 1968: roughly three-quarters of treated export value arose in markets where no never-treated firm was present in the baseline year.

Figures

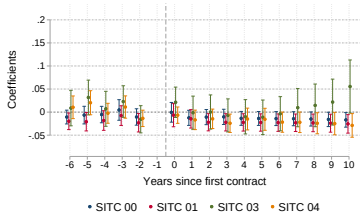
Figure A.1. Korea received more aid than Sub-Saharan Africa until the mid-1970s



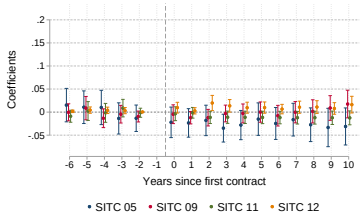
Notes: This figure compares the total volume of U.S. aid to South Korea and Sub-Saharan Africa, using official data from `ForeignAssistance.gov` (in billions of constant 2023 dollars).

Figure A.2. SITC 2-digit sector event studies

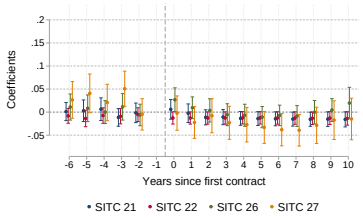
(**a**) SITC 00, 01, 03, 04



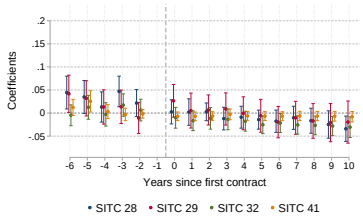
(**b**) SITC 05, 09, 11, 12



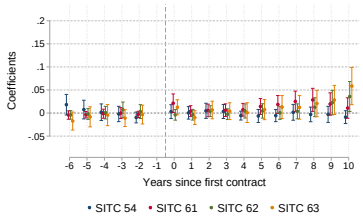
(**c**) SITC 21, 22, 26, 27



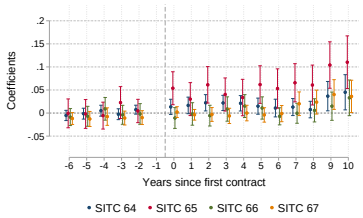
(**d**) SITC 28, 29, 32, 41



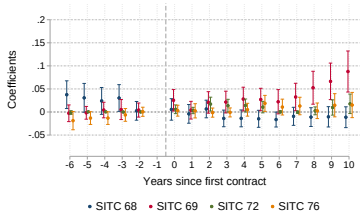
(**e**) SITC 54, 61, 62, 63



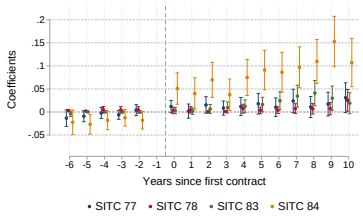
(**f**) SITC 64, 65, 66, 67



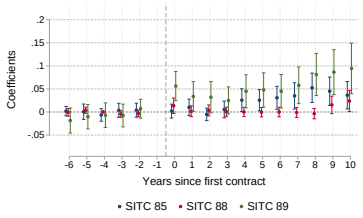
(**g**) SITC 68, 69, 72, 76



(**h**) SITC 77, 78, 83, 84

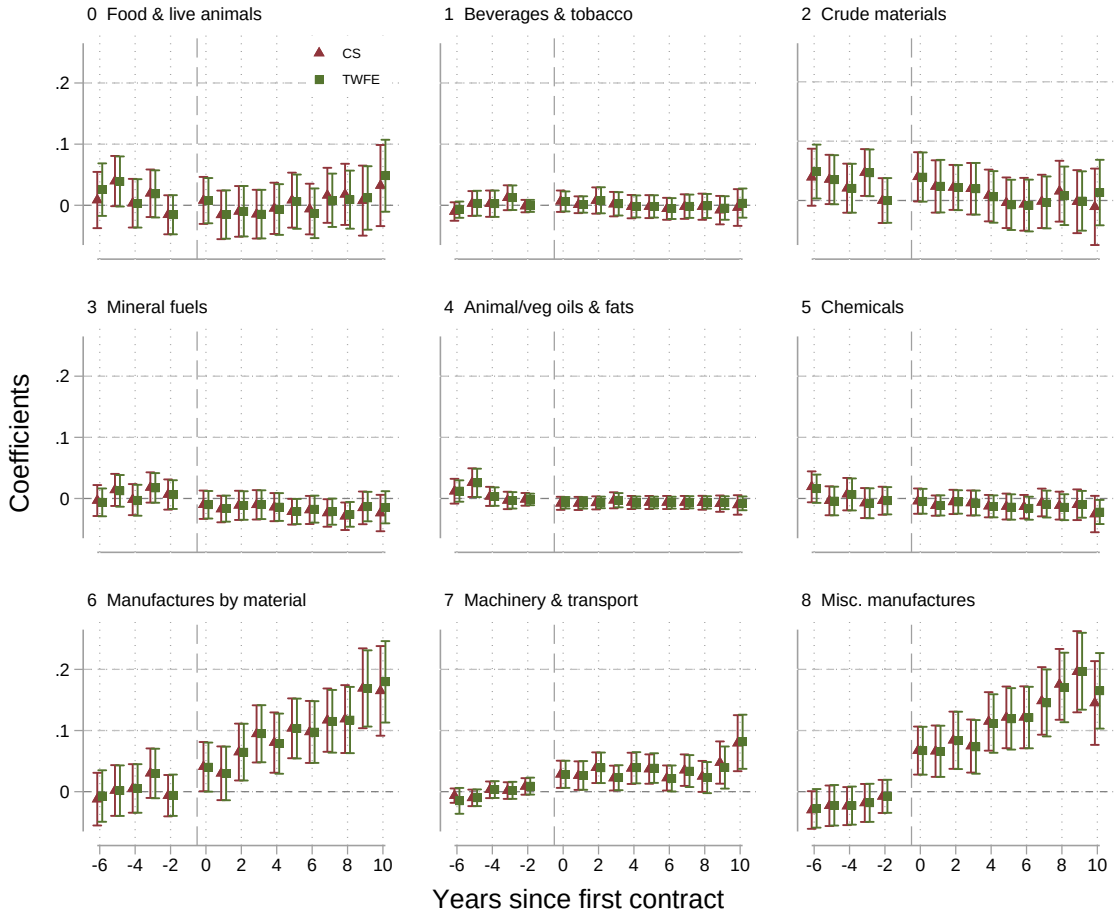


(**i**) SITC 85, 88, 89



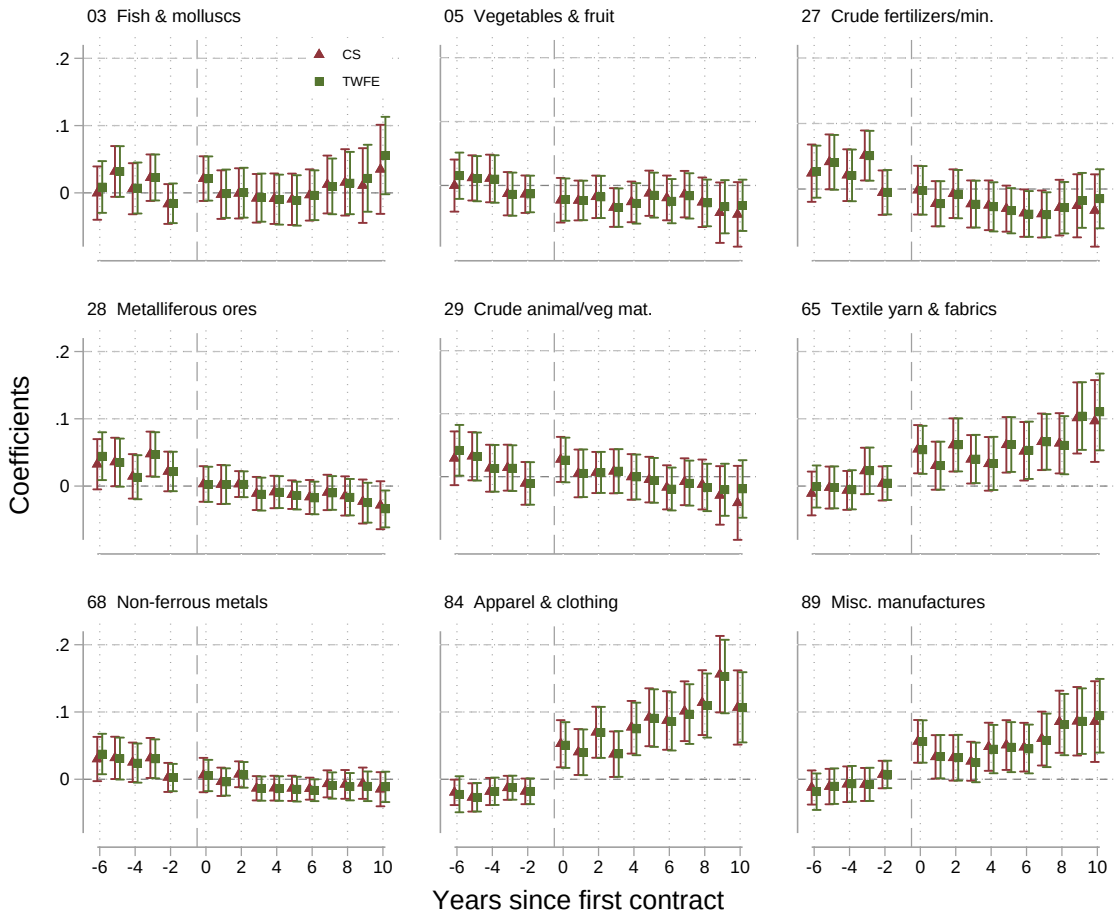
Notes: Each panel overlays two-way fixed-effects event studies of the effect of receiving a U.S. procurement contract on the probability that a Korean firm is listed as an exporter of at least one product in a given two-digit SITC division. Each colored series is one two-digit division (see legend); the nine panels partition, in ascending code order, the 35 divisions with at least 100 firm-year listings, counted over treated and control firms together. Estimates come from a separate regression per division, with firm and year fixed effects and indicators for years relative to the firm's first contract; the year before first contract ($h = -1$) is the omitted period, the dashed vertical line marks contract onset, and the event-time endpoints ($h \leq -6$, $h \geq 10$) are binned. Whiskers are 95% confidence intervals from standard errors clustered by firm. The outcome variable is constructed from the *Korea Trade Directory*. The estimation sample includes 289 treated firms and 3,514 never-treated control firms, spanning all treatment cohorts.

Figure A.3. Treatment shifts firms' exports to manufacturing, SITC 1, TWFE vs. CS



Notes: Panels 0–8 are separate event studies for the named one-digit sections of the Standard International Trade Classification (SITC, Revision 2). The outcome is a firm-year indicator equal to one when the *Korea Trade Directory* lists the firm among the exporters of at least one product mapped to the section; the vertical axis reports effects in probability units. The 1959–1976 sample includes treated firms from all cohorts and never-treated firms. Event time h is years relative to the firm's first U.S. Department of Defense procurement contract, with $h = -1$ omitted. Green squares show two-way fixed-effects (TWFE) estimates with firm and year fixed effects; maroon triangles show the Callaway and Sant'Anna (2021) group-time estimator (CS), using never-treated firms as the comparison group and aggregating to event time. The TWFE endpoints pool $h \leq -6$ and $h \geq 10$; CS reports $h = -6, \ldots, 10$ separately. Markers are offset horizontally for legibility, and whiskers are pointwise 95% confidence intervals based on firm-clustered standard errors. The dashed vertical line separates pre-contract and post-contract event times, the horizontal reference line marks zero, and light gridlines align with axis ticks. All panels share a vertical scale. In panel titles, "veg" abbreviates "vegetable" and "Misc." abbreviates "miscellaneous."

Figure A.4. Treatment shifts firms' exports to manufacturing, SITC 2, TWFE vs. CS



Notes: Panels show separate event studies for the named two-digit divisions of the Standard International Trade Classification (SITC, Revision 2), in ascending code order. The outcome is a firm-year indicator equal to one when the *Korea Trade Directory* lists the firm among the exporters of at least one product mapped to the division; the vertical axis reports effects in probability units. The 1959–1976 sample includes treated firms from all cohorts and never-treated firms. Event time h is years relative to the firm's first U.S. Department of Defense procurement contract, with $h = -1$ omitted. Green squares show two-way fixed-effects (TWFE) estimates with firm and year fixed effects; maroon triangles show the Callaway and Sant'Anna (2021) group-time estimator (CS), using never-treated firms as the comparison group and aggregating to event time. The TWFE endpoints pool $h \leq -6$ and $h \geq 10$; CS reports $h = -6, \ldots, 10$ separately. Markers are offset horizontally for legibility, and whiskers are pointwise 95% confidence intervals based on firm-clustered standard errors. The dashed vertical line separates pre-contract and post-contract event times, the horizontal reference line marks zero, and light gridlines align with axis ticks. All panels share a vertical scale. In panel titles, "min.", "veg", "mat.", and "Misc." abbreviate "minerals", "vegetable", "materials", and "miscellaneous."